

OFFICE OF THE GOVERNOR
STATE OF MONTANA

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GOVERNOR



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November 30, 1999

Clifford Hawkes
National Park Service
12795 West Alameda Parkway
P.O. Box 25287
Denver CO 80225-0287

Dear Mr. Hawkes:

Attached are the comments and other materials the State of Montana is submitting for consideration by the National Park Service for the Winter Use Plan, Draft Environmental Impact Statement for Yellowstone and Grand Teton National Parks and the John D. Rockefeller, Jr. Parkway.

Yellowstone and Grand Teton National Parks and the John D. Rockefeller, Jr., Memorial Parkway, are important to our state. They are unique areas, designated by the federal government, with special purposes. They provide Montanans, as well as visitors to our region, with opportunities to observe breath-taking scenery, countless wildlife species and spectacular geothermal features. All of these valuable assets are made even more unique when viewed in the dead of winter.

In 1997, we requested, and were granted, cooperating status under the National Environmental Policy Act (NEPA) for the Winter Use EIS process. It was the first time, in our knowledge, that states and counties were granted this important designation under these circumstances. It was a recognition that these parks and parkway are a part of our states and counties and that decisions made on the management of these resources should be done in consultation with state and county officials.

Ever since that time, we have been engaged with the Park Service on this project. We had great hopes that cooperating status would mean cooperation among state and federal agencies. Unfortunately, this has been a frustrating process for state personnel. Not only has the cooperation been less than we had hoped for, specific concerns we have raised have not been addressed.

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The DEIS contains seven alternatives, with Alternative B identified as the National Park Service's preferred alternative. Unfortunately, in our view, neither Alternative B nor the other alternatives we feel protect the valuable resources of the Parks and Parkway and recognize the importance of the communities surrounding these resources. For this reason, we cannot support the adoption of the National Park Service's preferred alternative.

Instead, after careful analysis, we are proposing an alternative based on adaptive management for air quality and wildlife management. Our preferred alternative emphasizes the protection of wildlife and other natural resources while allowing park visitors access to a range of winter recreation experiences. It uses an adaptive planning approach that allows the results of new and ongoing research and monitoring to be incorporated.

The Montana preferred alternative also includes the creation of an advisory committee to make recommendations to the Park Service with regard to the research, monitoring and other activities designed to make adaptive management successful. In addition, the advisory committee will make recommendations and foster partnerships between local communities, interested parties and the National Park Service.

As a part of the advisory committee, a technical subcommittee will make recommendations about adaptive management studies, standards for addressing mobile emission and sound issues. Local, county, state and federal agencies, as well as representatives from the snowmobile industry, local communities and environmental groups, would participate on a local subcommittee with the goal of increasing partnerships between all.

We hope the National Park Service will give careful consideration to this alternative.

In addition to the comments submitted, we would like to offer some general comments with regard to three specific issues: the defined purpose and need for the document, the effects the preferred alternative and others would have on bison out-migration, and impacts on air quality.

First, unfortunately, the document is based on a "purpose and need" which is difficult to understand. The document states that "The need to develop a Plan is indicated by the difference between desired conditions and existing conditions." However, the desired conditions are very difficult to determine. In fact, the document contains information about existing users desired conditions which contradicts what is proposed in the document. It states, "Plowed roads and snowcoach-only travel had very low support from the majority (>90%) of winter visitors surveyed. Most winter visitors highly valued the winter experience in the parks and feel it is a special and unique experience" (page 196). This winter use value, held by the American Public, is contradictory to the preferred alternative and comments in Chapter I.

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In addition to the possibility that the proposed preferred alternative does not fit the "desired conditions" of the general public which is the purpose and need for the document, we believe it will lead to greater Yellowstone Park bison out-migration. The document does not adequately explain the impacts plowing the road from Old Faithful to West Yellowstone would have on that out-migration. Our comments include studies concluding there would be increased out-migration as a result of plowing. The State of Montana has worked diligently within the framework of the Interim Bison Management Plan to reduce the need for lethal removal of bison due to the presence of brucellosis. We are deeply concerned that the National Park Service would propose a plan that would increase drastically the potential of removing bison. If bison remain within the Park, management options remain solely within the National Park Service's discretion. However, once bison leave the Park, the requirements of the Interim Bison Management Plan must be observed.

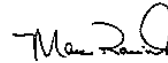
Last, there has been much discussion about air quality. Air quality in West Yellowstone and inside Yellowstone National Park is a concern because of carbon monoxide and particulate emissions from snowmachines and their resulting impact on ambient air quality, visitors and employees. We believe that there are technological solutions to reduce these emissions in both the short term and long term. Short-term solutions include stronger efforts to encourage the use of ethanol blend fuels in all gasoline vehicles, and low emission, biodegradable lubrication oils for 2-stroke engines in and outside the Park. This measure could be combined with eliminating the stopping and starting at the entrance into the Park from West Yellowstone by the use of express lanes during peak morning hours. Longer-term solutions include the use of new technologies in snowmobiles, especially the expected development of electric snowmobiles in the next 3-8 years, and moving the kiosk to an area where air movement is better. The short-term solutions need to be implemented now, for the 1999-2000 winter season as well as included in the EIS. Longer-term solutions to air quality concerns need to be implemented as soon as they are feasible.

The DEIS confuses data collected for personal exposure measurements (50 PPM) to the ambient air quality standards. The Montana Ambient Air Quality Standard (MAAQS) 1-hour maximum CO standard is 23 ppm as monitored according to the standard. The DEIS incorrectly states that MAAQS have been exceeded and violated. If MAAQS had been exceeded, it would have triggered a process to correct the situation. However, Montana is very concerned that the MAAQS may be exceeded soon because ambient air quality monitored last winter came within 90-percent of the standard. Corrections need to be made throughout the document on this issue and details are provided in the comments. Also, the federal government has delegated authority over federal air quality standards to Montana, and therefore decisions regarding air quality need to be made in conjunction with Montana officials.

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In closing, we believe that cooperation can lead to an alternative which meets the needs of the people who visit our special corner of the world as well as protect the resources recognized by the federal government.

Sincerely,



MARC RACICOT
Governor

Enc. (comments, air quality modeling, Montana Preferred Alternative)

COMMENTS ON DEIS

SUMMARY

IMPACTS

Page ix and x, Table s-1

Page xiii, Table S-2, Alternative A and C, "Class I designation": Please remove the reference to Class 1 airsheds because these parks are designated as Class 1 in the statute. The way it is now stated implies that the Parks can lose this classification.

CHAPTER 1 -- PURPOSE AND NEED

INTRODUCTION AND BACKGROUND

Pg. 2, second paragraph. Winter Visitor Use Management: The DEIS does not adequately describe the current winter use relationship between the greater Yellowstone area (GYA) and the parks. Furthermore, the lack of a clear management relationship between these land segments does not allow for the formulation of mitigative strategies for outcomes outside the parks produced by those alternatives A through G listed in the draft EIS. The proposed alternatives in the DEIS may have an adverse effect on those strategies and desired outcomes developed in the Greater Yellowstone Coordinating Council's (GYCC) "Winter Visitor Use Management" document. This land relationship is missing in the DEIS

PURPOSE AND NEED FOR ACTION

National Park Service Mandates

Pg. 3, paragraph 4: How does this executive order apply with the use of an existing interior park roads? What significant impacts are there to this travel corridor, which is historically and significantly impacted on a daily basis nearly 365 days a year? Additionally, winter motorized use in the parks is confined to a specific travel corridor versus non-motorized use that is dispersed. What impacts have there been from off trail use of snowmobiles

or summer vehicle travel, defined by the executive order? By plowing the road impacts may very well increase, not decrease. This can be partially based on comments submitted later in this document as to movement of wildlife along a tunnel, emissions trapped within the tunnel, ETC. If one examines the statement from the executive order ("off-road vehicle use will not adversely affect natural, aesthetic, or scenic values") what is the difference of impacts on these resource by snowmobile use and that of summer vehicle use along the road corridor? Without substantiated data of impacts to the stated resource values, how can NPS select or propose alternative based on this order?

Desired Conditions

Page 4, Last bullet: Last bullet: We recommend that NPS replace the words "Snowmobile emissions" with "Over-snow vehicle emissions." Emissions are not just from snowmobiles, and eliminating snowmobile emissions may not entirely solve air quality concerns. For example, emissions also can be reduced by changing the engines in pre-1971 vintage snowcoaches (that produce about 1,000 grams CO per mile) with newer engine technology having emissions controls when engines are replaced every 2 to 5 years. Page 27 has the proper reference.

We also recommend NPS replace the word "noise" with "sound".

Existing Conditions

Page 4, Existing Conditions: The discussion on Existing Conditions contains many statements which are beliefs. This should be more clearly explained to the reader or changed to be qualitative. For instance, under Visitor Issues, is the conflict between user groups or individuals a real conflict or is it perceived by some? Also, under Resources, do "many people" expressing concern mean the problem exists? These concerns may or may not be valid.

Also, how do these comments relate to the survey statistics referenced in the DEIS of the DEIS? On page 196, under The Availability of Access to Winter Activities or Experiences, it states that information is given indicating that (>90%) of the winter users surveyed expressed support for maintaining groomed trails within the park boundaries. While winter users responding to this survey are not the only indicators which should be used, it is a vital piece of information. This winter use value, held by the American Public, is contradictory to the preferred alternative and comments in Chapter I.

Page 7, Facility Issues: It should be within the scope of this EIS to consider the parks' infrastructure needs. The NPS and Congress have failed to adequately meet facility maintenance needs over the past several decades. The EIS should consider limitations on the parks' infrastructure. This is a programmatic EIS, and therefore appropriate to consider such issues.

BRIEF DESCRIPTION OF THE AREA

Climate

Page 8, Fifth paragraph: This paragraph should reflect that lodging and services are

provided 365 day a year in the surrounding communities.

CONSULTATION AND COORDINATION

Cooperating Agencies

Page 9, The comments are too limited. The MOA signed between the State of Montana and NPS, which appears in Appendix I states: "The State of Montana's special expertise is in the areas of socioeconomic effects, impacts on wildlife and recreational snowmobiling, as well as in the areas of environmental quality, including air and water quality issues."

SUMMARY OF PUBLIC COMMENT

Page 12, second table, Park Infrastructure and Operation, first row, Gasoline storage capacity: The comment refers to the limited amount of fuel storage in the interior of the Park. Alternatives B and G may not be valid alternatives because shuttles, snowplows, and snowcoaches would consume more fuel per mile than the current fleet of visitors. An effort would need to be made to ensure most of shuttles and/or snowcoaches enter the park with full fuel tanks.

MAJOR ISSUES

Air Quality

Page 14, First sentence: Studies during January and February 1999 at the West Entrance shows that the emissions are produced by snowcoaches, groomers, and drift from vehicles in town in addition to snowmobiles. The term "snowmobiles" is too limited and should be replaced in this sentence with "over-snow motorized vehicles."

Page 14, last sentence: "...emitted by snowmobiles on water quality was also a concern...." We recommend the document provide water quality comments with their own heading/paragraph as in other parts of the document. Otherwise, it appears air quality specialists are determining the impacts on water quality, which is a separate issue.

Human Health and Safety

Page 15, First bullet: The statement refers only to snowmobile emissions and noise, and needs to be more inclusive. We recommend that the first bullet read "The effect of motorized vehicular emissions and noise on employees who are required to work in areas with high traffic levels." All types of vehicles including snowcoaches, and in-town automobiles, trucks, and busses, produce pollutants. During winter conditions, these pollutants do not readily disperse as they do in the summer. The current bullet wording may lead a reader to believe that elimination of snowmobile emissions alone would eliminate the air quality problem, when in fact, the poor air quality may remain with any motorized vehicular emissions in a given area during winter conditions.

Sustained high levels of noise from vehicles may also compound the problems with emissions. For example, studies have identified that high levels of noise increase blood pressure. Increased blood pressure would exacerbate the effects of carbon monoxide (people would have more symptoms of CO poisoning at lower CO levels when blood pressure is higher). Effects of other pollutants might be similarly affected.

Natural Resources

Page 15, Bison are removed under the federal-state Interim Operating Plan due to the bison originating from a brucellosis-exposed herd. The statement made does not disclose the issue to the public. Also, in recent years, bison have been removed from the Stephens Creek facility which is on NPS property.

ISSUES OR CONCERNS NOT ADDRESSED IN THE PLAN / EIS

Summer/Winter Use Comparisons

Page 16, The comparison should be made so that analysis can be completed on whether there has been changes to the facilities in the parks, changes in the travel corridors and changes in the fees charged to enter the Park.

EIS Process

Page 17, Scientific Methods and Data: The document does not fully disclose impacts that may occur in the GYA, as a result from the EIS's alternatives, including the preferred alternative. The GYCC's Winter Visitor Use Management document with its strategies and desired outcomes maybe jeopardized by alternatives included within this DEIS.

CHAPTER II

ALTERNATIVES, INCLUDING THE PROPOSED ACTION

ALTERNATIVES

As a general comment, under this analysis why is it that the GYA is not incorporated into the formulation of the alternatives?

Page 23/24, Table 2, Management Prescription Zones, -Resource Condition or Character: The terms "good to excellent air quality" are not defined. It would be more appropriate to speak in terms of air quality degradation resulting from the Management Prescription compared to the current condition. We would recommend changing "good to excellent air quality" to "Reduced air quality degradation" or "improved air quality" for zones 2-7, "No impact on Air Quality" for zones 8-11 to the "maximum allowed by law (approaching exceeding the NAAQS) for zone 1."

Page 23/24, Table 2, Visitor Experience, Zone 2 Plowed Road: If snowmobiles were replaced with busses and automotive traffic, the vehicle exhaust might not "provide a sense of being in a natural park environment." For this zone, many of the visitors would travel by shuttle or personal vehicle, while others would travel by snowshoe and ski. The dispersion of emissions is typically worse in winter than in summer. Persons exposed to trapped levels of exhaust in and around roadways might not have the experience the sense of being in a natural park environment. Complaints of soot and odor from tourist busses and Park Service maintenance equipment have occurred in the past, and need to be considered in any alternatives.

Actions and Assumptions Common to All Alternative

Page 25, First bullet: The methods for determination of visitor use capacities should be more specific. Do indicators and/or standards for desired visitor experiences and resource conditions exist, or is there a need for additional studies and research? The EIS should disclose the study design, monitoring procedures and standards. The study design and monitoring would be common to all alternatives. However, each alternative could imply a different visitor experience and a different balance between visitor experience and resource conditions. Thus, the EIS should develop standards specific to each alternative. Experts from cooperating agencies should be involved in the format and procedures for any necessary future studies and research.

The MOA states that the Lead Agency (NPS) will be "sharing and exchanging models, data, and other information, in their possession now or when developed, relating to affected resources and environmental impacts and mitigation relating to the proposed action and its alternatives in the EIS." To date, we have not received such information, including information on visitor use capacities. This is vital in our efforts to fully comment on the DEIS.

Alternative G

Page 36: Actions Common to All Three Park Units, first bullet: It appears the standards to be applied to snowcoach vehicles are more strict than other vehicles (plows, groomers) maintaining park trails. These appear to be more strict than EPA standards, and would require remote sensing or another monitoring method to verify compliance. The remote sensing method of emissions monitoring evaluates a pollutant based on a percent difference rather than a mass measurement per unit of power as used by EPA. To get pollutant mass from a percent reading, assumptions must be made. For example, assumptions as to the miles per gallon of the vehicles may not be accurate. Further, vehicles like vans, plows, and groomers may use an engine in compliance with EPA certifications based on a mass of pollutant per unit of power evaluation, but may not qualify for use under the proposed NPS regulations. For example, a high power van engine could produce a higher amount of CO in the exhaust even though it meets a mass/unit power EPA requirement. The remote sensing unit would see a higher percent difference of CO due to the higher power engine. NPS should use the EPA method (of mass of pollutant per unit of power) to set emission standards, and/or use the EPA standards for these types of engines.

It would be helpful to readers and air quality modelers to state the number of vehicles/snow coaches needed to meet the peak day. We estimate that 180 van-sized snowcoaches would be required to do this.

Rationale for the Preferred Alternative: (page 38)

We recognize the National Park Service has the sole responsibility in developing a preferred alternative within this programmatic EIS process. In light of the stated NPS evaluation criteria for YNP (Pg 39, paragraph 2: visitor enjoyment, visitor access, resource protection, effects on local communities, and health and safety) we cannot fully accept

NPS statements (Pg. 38-39, 1st paragraph in section) which deny an obligation to incorporate information provided by cooperating agencies, as well as input from Park users gathered through the scoping and visitor survey process. The latter processes are primary sources of information on what visitors enjoy, what type of access they prefer, the effect of management choices on local communities, and public concerns for health and safety. This is essential information for the stated evaluation areas. To say NPS "might include" this information with consideration of environmental impacts in developing a preferred alternative suggests a one-sided assessment that discounts the value of certain categories in the stated evaluation criteria. It would be more appropriate to include this information in the preferred alternative development and craft a preferred alternative that responds to and balances the inputs from the evaluation criteria.

As you will see in our future comments, a lack of responsiveness and balance is one of our major concerns with the NPS preferred alternative. Alternative B ignores the overwhelming public preference on access to the park that is an essential element of the visitor experience and enjoyment. It also creates substantial economic harm to gateway communities. While the alternative suggests that a future market segment of visitors who, to date, have been unresponsive to the parks' winter use opportunities may become interested and lessen some of the economic pain, NPS states that it can present no data to show that this will happen. In addition, the preferred alternative does not take full advantage of opportunities to work with gateway communities to address some of the environmental and access issues. It does create some new – and negative – access, public and wildlife health and safety issues that must be dealt with. In short, it remains curious why this is a preferred alternative in light of the stated evaluation criteria.

CHAPTER III AFFECTED ENVIRONMENT

Mandated Topics

Page 79, bullet two: The DEIS is incorrect in dismissing the evaluation of energy requirements for all alternatives. By the mandates stated, NPS cannot select an alternative that uses more energy than the "No Action" Alternative. The statement "All alternatives propose a level of mechanized winter recreation...the requirements do not vary substantially by alternative," is not correct, as the energy requirements for Alternative G are significantly less than other alternatives. Further, Alternative B would require NPS and its concessionaires to use more energy (fuel) than Alternative A. (Also see page 12, second table, Park Infrastructure and Operation, first row, fuel storage capacity).

Impact Topics Dismissed

Exotic Species: Page 82, Analysis should be completed to determine the difference, if any, between uses for groomed trails or a plowed interior park roads and the possible introduction of noxious weeds and their seed.

Socioeconomic (Including Environmental Justice)

Regional Economy

Page 84, last paragraph of section. It would be appropriate to add that some of the recreational opportunities found in the GYA, particularly in Montana, are provided for through state grants to groom trail primarily located on adjacent U.S. Forest Service administered lands.

Employment and Income: Page 84 - 88. The descriptions for these two sections discuss the role of tourism. It is stated that the "regional economy are dependent on the quality of the resource base that supports them." While it is briefly referenced in the Regional Economy section, information should also be included on the need for access to public lands for recreation.

Also, it should be more carefully explained to the reader that the statistics used in the evaluation are very general. "Services" includes much more than tourism. For instance the health-care industry is included with the "services" portion of our economy.

Recreation Sector and Park Visitors (Pages 88 - 90)

We appreciate the statements in the Recreation Sector and Park Visitors Section (Pg. 89, paragraphs 1-5) which recognize the importance of winter recreation and related visitor expenditures to the GYA and, more specifically, Yellowstone Park's gateway communities. It is important to recognize that winter visitation and expenditures are essential elements of the economy and culture of communities like West Yellowstone, Gardiner, Cooke City and others in Montana's Gallatin and Park Counties. It is equally important to recognize that these gateway communities are essential resources for Park visitors and Park managers since the businesses and residents located here provide goods and services which enhance visitor enjoyment, assist visitor access, and provide for the visitors' health and safety during their visits to Yellowstone Park and the GYA. The Park managers could not serve the visitors' needs and demands and protect resources without these communities.

One point we would like to add to this section is recognition of the connection between winter visitation and related expenditures and the gateway communities' ability to provide quality services to Yellowstone Park's more numerous summer visitors. Without dependable winter visitation and expenditures it is unlikely that the gateway communities could adequately serve the warm season visitors. If the gateway communities fall short in this regard, that puts more pressure on the Park's services and facilities which are already challenged by current use levels. Recognizing this connection is absolutely necessary for a comprehensive analysis of the impacts caused by changes in Yellowstone Park's winter use management plans. The major negative impacts on the park's gateway communities are not limited to influencing only winter business operations, but year-long operations.

To support and amplify the economic importance of winter visitor groups highlighted in paragraphs 4 and 5 on page 89, we share with you the following information provided by The University of Montana's Institute for Tourism and Recreation Research (ITRR). Winter visitors attracted to Montana for recreation vacations had a average daily group

expenditure of \$146/day, compared with \$107 per day per group for summer visitors. With an average stay of 5.4 days, winter visitor group expenditures averaged \$788. Winter visitors in Montana for snowmobiling averaged \$188 per group per day and those here for downhill skiing/snowboarding averaged \$134 per group per day. The average length of stay for both of these groups was 6 days which resulted in average trip expenditures of \$1,128 for snowmobile groups and \$804 for skiers. While fewer in number, Montana and GYA's winter visitors are "high value" customers that provide more economic benefit per capita than warm season visitors.

Nonmarket Values (Page 92)

This section implies that there is a bison hunt. Montana law does NOT authorize a hunt. Note Bison EIS for background material.

Public Health (Page 93)

The public health and air quality sections in this DEIS really confuse ambient air quality standards and issues with personal exposure level standards and issues. These are really separate issues and need to be treated separately so that the appropriate agencies can act to resolve them.

Both sets of standards are based on the same data and studies conducted by EPA, however, the purpose of the standards, and applications are different. National Ambient Air Quality Standards (NAAQS), are designed to protect the entire population, from infants to elderly, who might be exposed to pollution without the choice of leaving. NAAQS are a combined level of emissions and a monitoring method. States may adopt these national standards or develop their own stricter standards. Montana adopted its own standards called the Montana Ambient Air Quality Standards (MAAQS). Violations of NAAQS or MAAQS are remedied through an EPA approved process administered by an air quality regulatory agency listed in the Clean Air Act. All sources of the specific pollutant in violation of the standard in the airshed are addressed in an implementation plan designed to bring the area into "attainment" of the standard.

In contrast with NAAQS, personal exposure standards are set on a national level. These standards are designed to protect persons exposed to pollution during their normal course of work, and are for a set period of time or work shift. They cover many more pollutants and levels than the ambient air standards. Studies by NPS, Kado, Peterson, Tyler, and Snook used this type of monitoring. These monitoring methods are very different from NAAQS. Typically, the problems are resolved by the employer, in a very different process than the one used to resolve non-attainment of ambient air quality standards.

Personal exposure standards are set for worker exposure to pollutants over the course of a workday. There are three sets of current personal exposure standards, but only those of the Occupational Safety and Health Administration (OSHA) listed as personal exposure level (PEL) are enforceable. Other non-enforceable standards are used for comparison in the references. This includes the National Institute of Safety and Health (NIOSH),

OSHA's research arm, reports their standards as recommended exposure levels (REL), and the American Conference of Governmental Industrial Hygienists (ACGIH) that reports standards as threshold limit values (TLV). For comparison, the OSHA PEL is 50 PPM CO, NIOSH REL is 35 PPM, and the ACGIH TLV is 25 PPM. OSHA standards are referred to in these comments because they are enforceable.

Page 93, Public Health, first sentence, "...increase in number of visitors..." A similar analysis is needed for the increase in snowcoaches. All the statements used to describe snowmobile emissions also apply to this type of snowcoach. For example, pre-1971 Bombardier model snowcoaches that comprised 100 to 85 percent (10 years ago to present) of all snowcoaches in Yellowstone emit much more HC, CO, and NO_x than current automobiles or light trucks. These machines average 5 to 7 miles per gallon of gasoline. EPA records indicate this type of engine (pre 1971, no emission controls) emits about 1,000 grams per mile CO for the speeds traveled in the Park.

Page 93, first sentence after Table 8: The sentence may refer only to the setting of national standards, but does not reflect the method used in Montana. The Montana standard was based on an epidemiological evaluation conducted by the State during 1979-1980.

Snowmobile Emissions Exposure

Page 94, paragraph immediately after the bullets: This paragraph, and others, combine remarks for ambient air quality with comments pertaining to personal exposure levels. These are separate issues. The monitoring methods and standards are different for both. The methods to resolve the problems and concerns of each are also different. For example, if a second reading of CO in a 12-month period exceeds the Montana Ambient Air Quality Standards (MAAQS) or NAAQS CO standards as monitored by DEQ at the West Entrance, then the area would become non-attainment. Actions would be required by the regulating air quality authority to bring the area into attainment. This air quality authority would be the state or federal air quality agency. If OSHA standards were exceeded for employees, the NPS and OSHA would be the authorities to remedy the situation.

Page 94, Third Paragraph, "The results of carbon monoxide monitoring ...indicate... standards were occasionally exceeded..." The NAAQS and MAAQS were not exceeded. The NAAQS establish not just a concentration, but they also identify the monitoring methodology and the averaging time. While there is work indicating that levels above 35 PPM CO occurred for a short period at points in the park, the data referenced here are comparable to personal exposure limits (OSHA is 50 ppm CO). Personal exposure limits were not exceeded.

The sentence should be changed to compare the data to OSHA levels.

Page 94, same paragraph, last sentence, "Montana 1-hour standard for CO...exceeded...." This statement again confuses ambient air quality standards and methods with personal

exposure readings. The MAAQS are tied to the same sample collection methods as national standards. There is no evidence in any of the NPS reports that these methods were followed. Further, the highest readings reported in Table 9 were taken inside a kiosk, which is not ambient air. The readings should be compared to OSHA standards (50 PPM) or those taken in a toll booth area. These high readings showed that the ventilation system was not installed correctly. It has since been corrected.

Page 94, Last paragraph, and Tables 8 and 9, "...air quality standards were occasionally exceeded." This statement is incorrect. The sampling and methods used in the study were not intended to determine compliance with state or national ambient air quality standards, so the data should not be compared to these (NAAQS) standards. Comparison of data to national and state ambient air quality standards requires certain analysis procedures. The procedures used by NPS staff were similar to an occupational health investigation. The readings should be compared to OSHA standards (50 PPM) or those taken in a toll booth area. Please note that Park Service employees suspected and reported that Park Service radios interfered with the CO analyzer, making all readings invalid.

The Montana DEQ now monitors the West Entrance of Yellowstone National Park. Monitoring results from February 1999 show that the MAAQS 8-hour average standard for CO (of 9 ppm CO 8-hour average) was approached. These standards could be exceeded at any time, but to date, the standards have not been exceeded.

Page 94, last paragraph, first sentence "Table 9" should be changed to Table 10. Both tables 9 and 10 inaccurately attribute all emissions to snowmobile traffic by listing only snowmobiles at the top of the columns, and do not include snowcoach and other vehicles. No background reading is given to account for pollution that may be coming from other sources like wood stoves or vehicles in the town. The University of Denver report also shows that snowcoach emissions are also high compared to other vehicles with 4-stroke engines. The table should be changed to include columns for snowcoaches and other (non-recreational) vehicles.

This entire table and section should be replaced with a summary of Dr. Norman Kado's September 1999 draft final report regarding exposure levels of mechanics, kiosk employees, and patrol rangers. The measured concentrations should be compared with the applicable federal limits for comparison (50 PPM).

Page 95-Second to last paragraph, "Violation of national standard..." The NAAQS were developed to protect the entire population, and uses air quality monitoring at fixed locations. Dr. Snook's work is concerned with personal exposure issues while riding a snowmobile. Her work is not comparable to NAAQS. Considerable caution must be used in interpreting air quality measurements for individual exposure. Further, an entire study was devoted to the breathing zone for snowmobilers—in other words, where to monitor for pollution likely to be breathed by a snowmobile operator (NAS). Snook's study was done after this work. References to national air quality standards should be removed and a discussion of occupational health needs to be included.

Also, the interpretation listed in Snook's report could be improved. NAAQS standards are designed to safeguard all of the population from infant to elderly, not just highway travelers. They were developed through a long process of consensus. Montana's standards were developed in a similar manner. Monitoring methods and siting were agreed upon in this process. Monitors are sited at locations where CO levels would be expected to be the highest, and at locations where air flow is not restricted or affected by physical structures.

Page 95, last paragraph, first sentence and last sentence on the page: There is no evidence in any of the NPS reports that NAAQS methods were followed. It is incorrect to compare these readings to NAAQS. We recommend changing the lines to compare these levels to OSHA or NIOSH standards.

Public Safety (page 96)

State officials have observed during routine trail inspections the past two winter seasons in the Gallatin Canyon that snowmobilers, nearly all non-residents, are traveling north along the highway from the Taylor Fork area. This is a termination point along the Big Sky Trail. Snowmobilers normally trailer their machines in and out of the Taylor Fork area. These snowmobilers are actually traveling on the highway surface or on the shoulder of the pavement to reach their destination, Big Sky resort, and then return to West Yellowstone via the same route. This situation is already dangerous and may become even more hazardous to the normal highway traffic and that of the snowmobilers if the preferred alternative is selected. This statement relates directly back to comments provided for the Greater Yellowstone Coordinating Committee document and Scientific Methods and Data.

Natural Resources

Air Quality

Page 107, last paragraph: The paragraph does not identify any other pollution sources in the Park. It should show other sources of pollution inside the Park that would include propane and oil heaters in visitors centers, hotels, restaurants, and maintenance facilities.

Also, are "ambient sources of air pollution" considered to be the thermal features?

National Ambient Air Quality Standards

Page 108, sentence 4: The method described for an area to become non-attainment for CO is incorrect. The CO standard is not to be exceeded more than once in a one-year period. This is for both federal and state 1-hour and 8-hour average standards.

Page 108, Table 14, Montana Mean hourly average for NO_x is incorrect. It should be 0.3 PPM instead of 0.03 PPM. Also "PM25" should be PM2.5. PM2.5 should be discussed in paragraph two with the other pollutants.

Air Quality Monitoring

Page 109, second paragraph: This paragraph should be broken into two paragraphs because two different types of monitoring are being reported. The first two sentences

should be replaced with information that reflects current knowledge. The existing two sentences describe a grab sample amount of 35 PPM CO near the West Entrance, and explains that the 8-hour average was exceeded in a pilot study in 1995. We believe the reference is to a report identified in the bibliography as "National Park Service, U.S. Department of the Interior. 1995b. Ambient Air Quality Study Results Summary--West Entrance Station, Yellowstone National Park". It is incorrect to compare these readings to NAAQS because they were made to determine personal exposure. The NPS report is still a draft. The draft NPS Ambient Air Quality Study Results Summary report incorrectly quoted Montana DEQ by leaving out the word "not" in front of valid in their appendix A of the report when describing the quality assurance (QA) monitoring of data collection. DEQ performed the QA inspections of equipment and data collection, and found that most of the data were not valid due to leaks in and lack of calibration of the system. Use of the draft report without corrections having been made is not appropriate here.

The results of the carbon monoxide monitoring done by DEQ during the winter of 1998-99 near the West Entrance could be used. The highest 8-hour average recorded was 8.9 PPM CO on February 13. The peak 1-hour concentration was 18.1 on the evening (5-6 PM) February 13, 1999. The summary has been available from Montana DEQ since April and a copy was sent to NPS in May of this year.

Page 109, Air Quality Monitoring, second paragraph: The last two sentences "Snowpack samples from...attributed to regional sources...." is correct and should be referenced to Ingersoll, 1999. This, however, is not air quality monitoring but water quality sampling, and an expanded paragraph with a separate heading is needed to summarize the rest of Ingersoll's work. The paragraph also could point out that increases of most hydrocarbons were proportional to increased snowmobile use levels. The exceptions were MTBE and toluene.

This may also be the appropriate location to summarize "Other Air Sampling Studies" to determine personal exposure of employees (Kado et al. 1999), measure the impacts of ethanol blend fuel using remote sensing of tailpipe emissions (Bishop, Stedman, Morris, 1998 and 1999), and work to identify particulate and aerosol composition (Carroll and White 1999, and Peterson and Tyler, 1999). Montana DEQ will assist in drafting or reviewing this section at the request of NPS.

Wildlife (page 110)

Bison: The writer uses the words "perceived risk of transmission of brucellosis". The Bison DEIS (pages 16 to 22) discusses not only the real threat of transmission, but also the perceptions within livestock markets of cattle from an area which has a brucellosis-exposed herd. Currently APHIS only allows certain bison to roam into a small part of Montana without the possibility of sanctions being imposed on the movement of domestic livestock. In addition, the National Academy of Sciences (NAS), National Research Council report explicitly defines the risk as "small but real". These issues need to be disclosed to the public.

Pages 115 - 116. The DEIS is incorrect on cooperating agencies for the Bison EIS. NPS, State of Montana and the Forest Service are co-lead agencies. APHIS is a cooperating agency.

The last paragraph does not explain to the reader why bison are removed through management actions. Bison are removed according to the federal-state Interim Operating management plan due to the presence of brucellosis.

Page 116. The second paragraph is misleading. It expresses the untested Meagher population domino/groomed trails theory for range expansion rather than the actual population expansion from all segments of YNP bison that led to range expansions along all borders. The sentence referring to increased movement westward from the Hayden Valley as "the Firehole Valley range expansion" is misleading. The Firehole and Madison Valleys have since at least the early and mid 70's been included as winter range (Craighead et al, 1973, Aune 1981). Work by Aune (1981) identified bison winter range along the Firehole and Madison Rivers and described movement of bison into and out of the Hayden Valley during which time the winter recreation program was in place. The actual range expansions observed since winter recreation programs began include increased movements out of the Northern area (where no snowmobile trails exist) and increased movement out to Cougar Meadows and West Yellowstone which began in the late 1970's (Aune 1981). Recent work by Bjornlie and Garrott (1998) also conflict with the Meagher population domino/groomed trail theory indicate that at the present bison do not use groomed roads for major shifts in distribution.

This DEIS section does not adequately disclose to the reader key elements about bison that are very relevant. In describing the environment the DEIS should reference the recent NAS review of Brucellosis in the Greater Yellowstone Area. Specifically the NAS report (Page 58) states "None of the weather variables or indexes shows a significant correlation with bison moving out of YNP, indeed, none is even suggestive. Only estimated bison population size is significantly related to the number of bison migrating out of the park". Also, the NAS (Page 61) says bison population size appears to be the overwhelmingly significant variable controlling movement out of YNP and that bison, however, have shown no evidence of regulation, but only of range expansion (Page 122). The likely consequence of shifting the boundary of protection from YNP to surrounding public lands is that bison, and perhaps elk, populations will simply increase further, shifting the boundary of protection from YNP to a new point-private lands-where even greater numbers of bison will have to be dealt with.

The discussion by the authors does not reference some work on the impacts of winter programs on wildlife. The following conclusion seems relevant to a discussion of the DEIS; "Recreation activity was not a major factor influencing wildlife distribution and cover use. The principle factors determining selection of cover types and the distribution of wildlife were the location of food coupled with minimizing the energy demands of the environment. (Aune 1981)".

In describing the affected environment the readers understanding of the existing conditions would be enhanced by including some of the following comments. "Bison movements appeared to be less restricted by snow than were elk movements. A network of well established trails and travel routes were developed as snow depth and crust conditions became severe. Bison frequently used river, streams, and warm marshes as travel lanes also. Bison were frequently observed traveling in the packed and groomed snowmobile trail and habitually used the trails as part of their intricate network of trails during winter months". (Aune 1981).

Threatened and Endangered Species (page 120)

Page 123, Canada Lynx: "However, remnant populations persist...." Although on a broad scale this may be true, in Montana, presence of lynx has been documented in all the major habitat areas that one would expect lynx populations to exist in. To apply the qualitative assessment broadly is to imply something that may not exist at least north of YNP in Montana. To date we know of no studies that have quantified the relative abundance question in these areas, but distribution has been well documented at least in the areas north of YNP to Canada.

Park Roadways and Motorized Trails

Yellowstone National Park

Page 135, sixth sentence "Grooming begins when there is adequate snow cover..." This practice should be maintained to help improve water quality on all groomed trails. Preliminary results from studies at Montana State University (Tyler, Peterson 1999) indicate that airborne pollution does not infiltrate to ground level, possibly because the bottom layers of snow dilute the airborne fallout, and some of the pollutants appear to out-gas as temperatures increase. This finding is partly confirmed by Ingersoll 1999, which found pollutants in run-off water to be negligible.

CHAPTER IV

ENVIRONMENTAL CONSEQUENCES

Assumptions and Methods

Public Health, Assumptions and Methods

Page 161. It is incorrect to compare these readings to NAAQS. We recommend changing the lines to compare these levels to OSHA or NIOSH standards. The first sentence should be changed to reflect "... employees and visitors might be exposed to air pollution levels approaching national and state standards." The NPS studies referenced for this statement lack the data and methodology to support "...emissions that violate NAAQS..."

Page 161: The text again confuses ambient air quality and personal exposure to emissions. We recommend splitting the discussion to describe the differences in assumptions, methods, and findings to date. The document needs to clarify that ambient air quality is determined through a specific set of monitoring and data collection specified

as National Ambient Air Quality Standards (for monitoring and pollutant levels). These standards are designed to protect the entire population from infant to elderly.

The same set of EPA studies also is the basis for personal exposure pollution limits for employees. The monitoring methods reflect the breathing area of the persons affected, an area not considered ambient even if it is outdoors. These recommended levels are generally designed to protect workers.

For air quality concerns, an unstated assumption regarding the West Entrance to Yellowstone National Park is that the current entrance kiosk and method of admittance to the Park will remain unchanged. This assumption needs to be challenged because the location, configuration, and operation of the station contributes significantly to poor air quality at the site. Research in early 1999 shows that emissions levels are highest at the west entrance. Emissions levels are reduced to about 25 percent of this high at Madison Junction and Old Faithful (where more snowmobiles were operating), and emissions are even lower a kilometer west of the entrance, and lowest at a West Yellowstone residential site about two kilometers from the west entrance (Kado et al. 1999).

Most of the high readings of carbon monoxide reported by NPS have been in close proximity to the West Entrance kiosk. A review of the NPS 1995 study data shows that the kiosk station slows air speeds much as a snowfence slows and traps snow. This slowing or stopping of air movement traps emissions around the kiosk. The situation is similar to what occurs at toll booths, and the entrance kiosk fits EPA's definition of a toll booth. Toll booths with high concentrations of pollutants have reduced concentrations 35 to 73 percent by removing the roof connections between toll stations. Similarly, if the roof to the West Entrance kiosk were removed, air flow around the kiosks would be increased and vehicle emissions would be more easily dispersed. This has been discussed with Park Service personnel a number of times including an analysis in a letter from one of the engineers involved in the winter use studies in August 1997 with respect to improving the ventilation air for the kiosk workers.

Two potential management changes to improve air quality at the entrance were discussed at the West Yellowstone Winter Use meeting in early 1997, but are missing here. The first would be to move the winter entrance station 1 to 2 miles farther into the Park where air flow conditions are better. The cost was estimated at less than \$500,000, and industry representatives expressed interest in helping pay for this new entry station. If the entrance were permanently moved, air quality would also improve for summer employees and visitors. Another management technique that is being evaluated but is not discussed is the increased use of express lanes. The use of these lanes would not disrupt traffic flow, would decrease rider and employee exposure to emissions, and would eliminate emissions resulting from idling engines waiting in line. These two different management strategies need to be discussed in this DEIS, and considered as simple solutions to both ambient air quality and personal exposure concerns.

Public Safety (page 162)

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Assumptions and Methods for Assessing Impacts: The expectations that a proposed alternative or action would decrease conflicts is not completely accurate. By the displacement of a particular group to the surrounding public lands it has the potential of shifting the conflict and responsibility for administering those conflicts outside the National Park Service's jurisdiction. The analysis is not valid for the preferred alternative. This analysis does not go far enough to address the issue of user conflicts and safety in the GYA.

Natural Resources

Water Resources

Page 163, paragraph 3, "Emissions from 2-stroke engine exhaust include carbon monoxide, hydrocarbons; particularly polycyclic aromatic hydrocarbons, methyl tertiary butyl ether...." The reference to methyl tertiary butyl ether should be removed because it was not found in the emissions of the engines tested in the work by White, Carroll, and Haines (see page C-3) listed as the reference. MTBE was not found in any of the laboratory work, nor in any of the snow samples in Montana listed in Ingersoll 1999. This illustrates an need to continue to study the environmental effects from all winter use and emissions. The proposed adaptive management alternatives are critical to using the best information possible to manage and protect the health of employees, visitors, and the environment.

Page 163, last paragraph, 4th sentence "...greater chemical disposition of (ammonium, nitrate...." Please remove the reference to nitrate should be removed because the study by Ingersoll (1998, 1999) found that nitrates did NOT increase proportionally to the amount of snowmobile traffic. Another regional source was attributed to be the nitrate source. This is reported correctly on page 109, paragraph 3.

Page 164, top of page paragraph: Sentence 1 and 4 are repeated.

Air Quality

Page 164, after sentence 2: The reader would be better prepared to make an informed decision about the alternatives if the status of these regulations was discussed. A draft regulation is due in September 2000, and it will take some time to become final. There will probably be a phase-in of the regulations. In other words, EPA regulations may help the situation in the 2006 to 2008 time frame.

Page 164, end of first paragraph: NPS does not consider the impacts of climate on emissions and emission dispersion...The DEIS should have this described. NPS has sufficient data to review (through a model) the effects of ethanol blend fuel for all vehicles and low emission lube oil on a worst-case scenario. Using data supplied in this DEIS for Alternative A, studies referenced in this DEIS, and DEQ's professional review, DEQ predicts that the use of ethanol blend fuels and low emission lubrication oils in snowmachines could reduce CO emissions of these vehicles by as much as 26 percent. (Table 2, Cain et al. 1999). This potentially could reduce 1-hour maximum CO levels in a worse-case scenario at the West Entrance to 76 to 86 percent of that estimated for

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Alternative A. This would be a reduction of 14 to 24 percent which is better than moderate as described on DEIS page 161, Table 36.

It is possible to reduce the CO levels further through a combination of the exclusive use of ethanol fuels and low emission lubrication oils and elimination of stopping and starting at the park entrance. Park access would be through express lanes for both snowmobiles and snowcoaches with speeds limited to no slower than 15 mph. Entrance passes would be pre-sold in West Yellowstone. This approach would reduce estimated peak 1-hour ambient CO levels to 55 percent of those in Alternative A.

Page 164, third paragraph, fourth sentence: It should read "...Road segments from West Yellowstone to Old Faithful were found to have levels of CO possibly exceeding national occupational health standards." Again there is an implication that the NAAQS were violated when, in fact, the methodology was not appropriate for such a determination. This would reflect that OSHA rather than NAAQS monitoring was conducted, and that OSHA levels may have been exceeded.

Impacts of Implementing Alternative A -- No Action (page 176)

Effects on Public Health, Page 177, paragraph 5, last line: The paragraph should specify that only NPS and West Yellowstone rental operators use both these products. Only 5 to 6 percent ethanol blend in gasoline fuel was estimated to be used at the West Entrance in the morning (Morris, Bishop, Stedman, 1999). Yet, this produced a seven percent reduction in CO tailpipe emissions. The amount of ethanol blend in rental snowmobiles and snowcoaches is reduced from 10 percent by the amount of fuel purchased inside the Park because Yellowstone Park Service Stations, an NPS concession, do not carry 10 percent ethanol blend.

Because of the ^{new location} environmental benefits, stronger encouragement could be given using ethanol blend fuel and low emission lube oils. NPS should work with their concessions to make ethanol blend available to visitors.

Page 177, paragraph 6: DEQ concurs that there would be adverse air quality impacts from the worse-case scenario of Alternative A, No Action. DEQ's review of data collected and modeling of 1-hour peak emissions indicates that the CO 8-hour average standard is more likely to be exceeded before a 1-hour standard because the evening temperature inversion forms before the majority of snowmobiles leave the Park. This traps emissions from these machines and causes a peak concentration that is potentially higher than the morning peak (Cain et al. 1999). This was also evidenced in the emissions monitoring summary of February 13-14, 1999 (Ugrowski 1999). However, a violation of the 1-hour standard also is likely given the description of a peak, worst-case day in this DEIS.

Natural Resources

Water Resources

Page 179, bottom paragraph, last line: Please remove methyl-tertiary-butyl-ether from this

sentence because it was not found in either study by Southwest Research Institute (page C-3).

Page 180, top paragraph: This paragraph combines two very different studies—one on tailpipe emissions by White et al. and one on snowpack chemistry by Ingersoll et al. Please note that Ingersoll found MTBE levels in tens of parts per trillion and most standards are a thousand times higher (parts per billion) in the snowpack nearest the trail. MTBE and toluene measurements did not correlate with snowmobile use.

Page 180, paragraph 3, last sentence: The statement is correct that "impacts from emissions in runoff water have not been found" and should be referenced to Ingersoll 1999.

Mitigation

Page 181, first paragraph: Please change the sentence to read: "This disposition may have a minor decrease in pollution deposition into the snow, but might significantly reduce the persistence of emissions in the run-off water." This is based on two separate sets of findings. This supports the need for continued applied scientific studies to support an adaptive management approach to manage winter use in this area.

Work by Castrol, Rotax Engine Company, and several European universities showed that highly biodegradable, bio-based lube oils maintain over 80 percent of their biodegradable characteristics after being emitted from the engine exhaust, whereas emissions generated from partial combustion of conventional, non-synthetic, mineral lube oils increase their persistence. Over 86 percent of the emissions from Castrol's engine oil (Rotax biodegradable synthetic) were biodegraded within 50 days at 1 degree Celsius, compared to less than 3 percent for conventional fuel and lube oil emissions. The data were collected on projects in England and Germany using an ISO/ANSI method with water at 1 degree Celsius (to acquire European environmental certification). Once aware of the study results, NPS initiated the use of biodegradable lube oils. The use of biodegradable, low-emission lubrication oils for 2-stroke engines should be required of all fleets and permit holders in the parks. We recommend that their use be encouraged in private vehicles.

Second, recent results from Ingersoll (1999) found no impact on runoff water. Preliminary work compiled by Montana State University also indicates that these emissions do not appear to persist in the environment. We feel continued and longer-term studies are important to determine the effects of emissions in the snowpack and runoff water. Continued applied research studies and an adaptive management approach are needed to protect human and natural resources.

Air Quality

Page 181, paragraph four, first sentence: Again there is an implication that the NAAQS were violated when, in fact, the methodology was not appropriate for such a determination. It is incorrect to compare these readings to NAAQS. We recommend changing the lines to compare these levels to OSHA or NIOSH standards. Data from DEQ's monitoring

station support a statement that levels are approaching Montana air quality standards..." Please see earlier comments with respect to ambient air quality and personal exposure levels. Traffic congestion should be eliminated as much as possible to eliminate build up of pollutants and reduce operator exposure. NPS should engage additional meteorological studies to determine areas of improved air flow for staging areas and entrance stops. NPS should eliminate stops by using express lanes, or limit stops to areas of better air flow.

Page 181, last paragraph: "Emissions of CO and particulate...reduce visibility." This statement is confusing and possibly an incorrect combination of two statements. Particulate, SOX and NOX emissions contribute to reduced visibility because they are suspended in the air. CO is a colorless, odorless gas.

Page 182, top paragraph, "...air violations recorded there." This statement is incorrect and continues to confuse the issues between ambient air quality and employee/visitor exposures. It is incorrect to compare these readings to NAAQS. NPS has collected data that may indicate personal exposure levels were high, and levels possibly reached or exceeded. We recommend changing the lines to compare these levels to OSHA or NIOSH standards. Please see the comments for page 181, paragraph 4 related to reducing congestion and placing staging areas where there is air flow.

Effects on Wildlife

Threatened and Endangered Species

Page 187, "Lynx abundance in YNP is very low". This is a misleading statement. Although there is enough evidence to clearly document lynx presence in YNP, there have been no studies to date that have been designed to provide a measure of relative abundance. However, because Yellowstone is near the southern limits of its distribution, lynx populations would be expected to be low even under the best of circumstances compared to those populations further north and certainly those found in Canada.

Effects on Natural Quiet

Conclusion

Page 193, first bullet: This sentence appears to state snowcoaches have a larger impact on sound than do snowmobiles. This contradicts statements on the previous and other pages that show snowmobiles have a larger impact. Should snowmobiles be 2 miles and snowcoaches be 1 mile?. See pages 215 and 235 for a corrected statement.

IMPACTS OF IMPLEMENTING ALTERNATIVE B

Effects on the Socioeconomic Environment

GYA Regional Economy

Pg. 198, paragraphs 3-5: Rating the impact of this alternative and the other park management alternatives on the 17-county, 3-state economy is irrelevant in the context of the stated Rationale for the Preferred Alternative outlined on pages 36-39. Effects on local communities is listed among the criteria used to assess the alternatives, but impact on the regional economy is not. The focus and emphasis for assessing Alternative B's effect

should be on the major negative impact it has on the West Yellowstone community, in particular, and the other Montana gateway communities, in general. This impact is correctly recognized by the DEIS authors in paragraph 4.

Paragraph 5 suggests that "new users" who have to date been unresponsive to Yellowstone Park's winter use opportunities may be attracted by the new access services offered under this Alternative and that would lessen the economic pain caused gateway communities. NPS cannot provide any information on the number of "new users" who would actually act on this opportunity. There is a very good chance that the economic blow hitting the gateway communities would remain severe.

In addition, we reiterate our earlier point (Recreation Sector and Park Visitors comments) about the interconnected nature of a healthy winter visitor economy to the West Yellowstone community's ability to serve the Park's more numerous warm season visitors. Alternative B's major negative impact on West Yellowstone's economy jeopardizes the community's ability to assist Park managers in the pursuit of providing year long visitor enjoyment, access, and protecting visitor health and safety.

We appreciate the winter visitor survey information and the economic impact analysis that is provided in the Socioeconomic Environment section for Alternative B. This is important information for the public to have as it reviews and comments on the winter use plan alternatives.

As we look at this material, the extreme lack of support among current winter users for plowing the road between West Yellowstone and Old Faithful, the major negative economic impacts imposed on West Yellowstone, and the inability of NPS planners to document whether this new service provides an opportunity that a currently unserved public would actually use magnifies our wonderment over why this proposal is part of a preferred alternative.

Also, within Chapter I, the DEIS discusses "differences between desired conditions and existing conditions". How do the comments on Desired Conditions (pages 3 & 4) correlate to the lack of support for the preferred alternative and the statement that there is a "consistent picture of very low support among current winter visitors to the GYA for the management change contained in alternative B" (page 200)?

Part of the rationale for the plowed road proposal in Alternative B is to provide more access opportunity for low income visitors. On pg. 199, the ability of the Park Service to actually change the mix of lower, middle and higher income visitors to the park is questioned by the DEIS authors. In addition to the question of NPS influence over this area, the authors state that "the income distribution of summer and winter visitors to YNP is quite similar." This leads us to ask: Is there a real problem the National Park Service is trying to address here? And is it a problem the Park Service has effective tools to address. The DEIS answers "no" to this last question with an additional statement on pg. 199: "The share of the total visitor costs that can be affected by park policy is relatively low." It is our view that

weather related considerations and the cost of traveling to the Greater Yellowstone Area in the winter time are more of a deterrent to low income visitors than lack of automobile or shuttle bus access to the park itself. The Park Service and cooperating agencies have no control over Yellowstone's geographic location or the weather. We continue to question how the road plowing portion of Alternative B provides a positive resolution to the major issues the park's winter use plan is supposed to address.

Minority and Low Income Population

Page 199. Our comment about Alternative B's attempt to "provide affordable access" for minority and low income population is summed up by the DEIS writers themselves (Pg. 199, paragraph 5): "Summer visitors do not face the high costs of snowmobile rental, snowcoach use, yet the income distribution of summer and winter visitors to YNP is quite similar." We continue to ask what problem NPS is trying to solve?

In the same paragraph, the DEIS writers state: "The share of the total visitor costs that can be affected by park policy is relatively low." This point is amplified when talking about winter visitation. Winter travel is more expensive than summer travel because of vehicle and clothing requirements, the necessity of indoor lodging versus camping, recreational equipment needs, food requirements and other considerations. It is our view that weather related considerations and the cost of traveling to and staying in the Greater Yellowstone Area in the winter time are more of a deterrent to low income visitors than lack of automobile or shuttle bus access to the park itself. NPS and cooperating agencies have no control over Yellowstone's geographic location or the weather. We continue to question how the road plowing and shuttle service portion of Alternative B are responsive and provide a positive resolution to this issue.

Conclusion (Pg. 201)

We reiterate the view stated above that the major negative economic impact on West Yellowstone and other gateway communities caused by Alternative B is the relevant evaluation criteria, not the multi-county/state assessment. As we look at this material in context with the extreme lack of support among current winter users for plowing the road between West Yellowstone and Old Faithful, and the inability of NPS planners to document whether this new service provides an opportunity to an interested yet unserved public that could actually act on it, we continue to question the responsiveness of this alternative to the issues at hand and its balance in addressing them.

We would suggest that Yellowstone's current visitor access and recreation services have and are responding to a natural winter visitor market for the Park. Winter recreationists are interested in outdoor activity, unique access opportunities and exploration, not shuttling along a snow berm corridor. Alternative B's road plowing plan is a major violation of the stated visitor enjoyment and access evaluation criteria as well as the economic well being of the gateway communities, most notably West Yellowstone. It makes much more sense to add shuttle access in some form and locale without removing the high demand modes of access. Essentially, Alternative B removes the most popular access form and replaces it with a service that is the least popular and with lowest demand (Draft Report, Winter

1998-99 Visitor Survey, Pgs 22-24, 25, 29, 37). This is hardly responsive to the stated alternative evaluation criteria. There must be other more balanced mechanisms for addressing the environmental issues with the access, enjoyment, health and safety issues.

Effects on Public Health:

Page 202, paragraph 1, first sentence: The word "snowmobile" should be changed to "over-snow vehicle" emissions because all vehicle emissions will be effected. DEQ estimates that CO vehicle emissions would be reduced by about 15 percent of those in Alternative A. The effect of this reduction would be seen in DEQ's evaluation of the estimated worse-case 1-hour CO levels for the West Entrance. For this evaluation, DEQ used information on Alternative B using data from paragraph 2 and pages 217 and 218. The CO level would be about 16 to 22 percent of the CO level in Alternative A for the West Entrance of the Park (Table 1, Cain et al. 1999). It is not the lowest level derived from modeling the alternatives—that would result from either Alternative F, closing the roads, or an alternative based on the exclusive use of electric snowmobiles mentioned on page 208 (alternative fuels), either of which would produce negligible emissions at the West Entrance.

Effects on Public Safety (page 203)

Analysis

No mention is made for the public safety outside the parks within the GYA. Reference is made on pg. 197 that alternative B has the potential to impact visitation levels to the GYA.

Vehicle/wildlife conflicts can be anticipated in addition to increased vehicle conflicts on the plowed road between West Yellowstone and Old Faithful. In Chapter III, Affected Environment, pg. 00, it is stated that wheeled vehicle vs animal accidents are the most common type in Yellowstone (35%) with vehicle vs vehicle being second (32%). Recognition that these conflicts will exist on this section of roadway may necessitate an adjustment of the stated conclusion.

Natural Resources -- Yellowstone National Park

Geothermal

We question the analysis statement that visitation to the geothermal basins along the Madison to Old Faithful road segments may increase due to the longer visitor season. In this document the Park Service has only identified a decrease in expected visitation among current winter users and has been unable to estimate any additional new winter users that might increase park visitation from current levels. Additionally, the information provided about the proposed shuttle service between West Yellowstone and Old Faithful mentioned no opportunities for stopping and viewing along the route. With the limited parking spaces for visitors at Old Faithful and the proposed reservation system it would not appear that auto traffic would generate this additional visitation.

Wildlife

Pg. 208: We are very concerned about the tunnel effect created by plowing roads in high snowfall areas. Our experts' experience in the Park has led them to believe that bison do

use roads and snowmobile trails to travel at times. Groomed snowmobile trails provide a packed surface for them to walk on. Even with grooming there is a berm created along side the roads that bison often cannot cross. As such, they often get trapped along the groomed trails.

During the spring as the Park begins to plow the roads one of the most obvious effects is the tunnel that is created by the clearing of snow from the road bed. The berm created by plowing is two-to-three times the size of that created by grooming and could reach six to eight feet in height. This creates an impenetrable wall through which no wildlife can pass. This tunnel effect is observable in each post snowmobile period. During this period the use of the roads by bison increases and the impact is that bison more readily move longer distances and could exit the Park more easily than on groomed snowmobile trails.

We believe the tunnel effect created by winter plowing would encourage bison movement out of the Park complicating bison management in the area of West Yellowstone and Horse Butte. At the very least, some mitigation provisions for the plowing option should be included such as clearing exit lanes at key trail break off points for bison and elk. Or, modifying snow removal methods to eliminate a build up of snow along side the road system.

The major out migration of bison from the Old Faithful area toward West Yellowstone coincides with the spring closure to snowmobiles and the initiation of snow plowing. As such, the preferred alternative could result in early and substantial migrations out of the Park toward West Yellowstone. At a minimum, this concern should be noted and this issue should be evaluated in the EIS.

The discussion about ungulates espouses a particular theorem by Mary Meagher but does not disclose the data analysis in the NAS report indicating that population size not winter weather was the factor most critical to range expansion. Both papers by Meagher 1993 and Meagher et al 1994 are discussion papers and do not provide quantitative evidence to support conclusions.

In the same page there is a speculative comment that groomed snowmobile trails may have changed the energetics of bison ecology. This, again, is theory and data does not exist to confirm this. The comment should be framed as an opinion not measured scientific evidence. The only examination of bison population data does not indicate a change in reproduction or recruitment to the bison population following the introduction of the winter recreation program (NAS report 1999).

If the DEIS discusses the energetic value of walking on groomed roads it must also frame the discussion in light of energetic costs of being displaced from roadside areas. The authors repeatedly cite the studies that report energetic stress from winter recreation (Aune 1981, Cassier 1992, Tyers 1999, Picton 1999, Halfpenny et al 1999). In terms of energetics, most of the gains from walking down groomed trails might be offset by occasionally being chased or displaced from habitat by skiers or over snow vehicles. The

DEIS should disclose to the public these elements in terms of the total energy budget for wildlife living within the affected environment.

The March-April period is the time of year critical to most species of wildlife within a winter environments such as YNP (Aune 1981, Craighead 1973, Richen and Lavigne 1978). Recreation activity during this time probably has the greatest impact. (Aune 1981) Recent work by Bjornlie and Garrot (1998) and Aune (unpublished data) show that bison increase movements and activity levels during this period. It is intuitive that increased access to the road network caused by plowing during this period is likely to enhance this movement as bison search for spring forage that becomes available.

The section also indicates bison on the Northern end of YNP travel on unmaintained trails, game trails, and over open terrain to and through public lands throughout the park. Included in this list should be the several documented movements we have established in our radio work when bison traveled the highway from Tower over Blacktail and down to Mammoth. This travel route is clearly identified in data from 2 bison wearing GPS collars and we have observed or followed bison on this road several times. Cite (Aune et al, Unpublished data and Aune et al 1997). The DEIS does not have the Aune et al, 1997 citation in the literature cited.

The authors make careful note that bison do not move out of the Park via the road from Seven mile bridge to West. Recent tracking data and observations by many biologists indicate that the road from Madison Junction to Seven mile bridge is the main travel route for bison moving in to the Cougar Meadows and Lower Madison below Seven-mile Bridge. This route is down through a narrow canyon and funnels bison toward the areas which lead ultimately to West Yellowstone. This should be disclosed in the document so the readers know that some critical groomed road segments are essential to movement out of the Park. Additionally there is a critical section of groomed road along the Firehole to Madison Junction which is used most of the time for bison moving to the Madison. These road segments are almost always used by the bison that move to and from these wintering areas.

In the section, "non-motorized uses on groomed and ungroomed routes", the authors dismiss the effect of this use because peoples travel routes are shorter and ungulates do not need to move far to avoid the use. Yet the evidence in several scientific studies shows that the escape distance and behavior reactions of wildlife from skier and snowshoe approaches are in fact greater. The impact of an activity is related to the physiological effect and energetic costs of reacting to the impact not by the distance traveled by winter recreationists. The rationale used here is not valid. Smaller numbers of encounters with people on foot can have greater impact than a larger number of encounters with minimal behavioral reaction.

Clean Air

Page 221, paragraph 6, Clean Air, sentence 3: Please change the word "snowmobiles" to over-snow vehicles to represent that all vehicles will have improved emissions.

Impacts of Implementing Alternative C (page 223)**Socioeconomic**

We would offer the same comments as presented for this section in Alternative B with regard to the plowing of the road between West Yellowstone and Old Faithful.

Effects on Public Health, page 225

Page 225, first paragraph: Alternative C is better for air quality than Alternative B. It is not the same as indicated in this paragraph. DEQ estimates that Alternative C would reduce CO emissions from vehicles by about 12 percent. DEQ's analysis and professional review of the 1-hour peak CO level for a worse case scenario at the West Entrance under Alternative C is about 16 to 20 percent of the CO levels estimated in Alternative A.

Effects on Public Safety

We feel it is important to add that vehicle/wildlife conflicts can be anticipated in addition to increased vehicle conflicts on the plowed road between West Yellowstone and Old Faithful. Justification for this was given in our comments on this section of Alternative B. As with our comments in that section we suggest that this addition may necessitate an adjustment of the stated conclusion.

Wetlands and Aquatic Resources

Page 229, second paragraph, sentence two: This sentence does not appear to reflect that Alternative C requires ethanol blend and low emission lube oils. Under Alternative C (Table S-1, S-2), a snowmobile not using these products (producing lower emissions) would be turned away from the park. Further, most snowmobiles entering from West Yellowstone currently have some amount of ethanol blend fuel. The sentence should either be removed or changed to identify that these fuels and lube oils are used.

Page 229, second paragraph, sentence four: Please see comments from page 180 identifying that emissions have negligible impacts on runoff, streams, and lakes.

Air Quality

Page 230, second paragraph, last sentence: This sentence does not appear to reflect that Alternative C requires ethanol blend and low emission lube oils. Under Alternative C (Table S-1, S-2), a snowmobile not using these products (producing lower emissions) would be turned away from the park. Further, most snowmobiles entering from West Yellowstone currently have some amount of ethanol blend fuel. The sentence should either be removed or changed to identify that these fuels and lube oils are used.

Effects on Public Health**Air Quality**

Page 230, paragraph 3, sentence 5: The effects of "emissions only slightly reduce ..." does not coincide with the effects of emissions restrictions provided in Alternative D. DEQ found that the emission requirements listed in Alternative D would lower CO emissions from

vehicles by 40 to 44 percent of those in Alternative A. DEQ estimates that these emissions would reduce the 1-hour peak CO level for the West Entrance to about 49 percent of the CO level in Alternative A. We would anticipate that NPS would have some method to monitor vehicle emissions entering the park to have high polluting vehicles turned back to be repaired.

Page 231, paragraph 2, third sentence: What is meant by "...improve protection designation of Class 1 Area?" These areas are all designated by statute as Class 1 areas, and cannot be removed from the list except by Congress.

Impacts of Implementing Alternative D**Air Quality**

Page 249, paragraph four, last sentence: This sentence needs to be changed. This sentence does not reflect that Alternative D requires machines with lower emission levels. Under Alternative D (Table S-1, S-2), a snowmobile without these emission levels would be turned away from the park. This is at least a moderate impact as described in the DEIS page 161, Table 36, not a minor impact. Please see our comment on page 230, and also paragraph five, on page 258, Clean Air for a correct assessment of the impacts.

Impacts of Implementing Alternative E**Air Quality**

Page 261, first paragraph, and Page 263, paragraph 5, Air quality: Professional judgement of DEQ staff is that air quality at the West Entrance under Alternative E would likely exceed a state or national standard for CO without some modifications.

DEQ also evaluated a modified Alternative E that would require the use of ethanol blend for all vehicles and low emission lubrication oil for all 2-stroke engines entering the Park. This would reduce CO emissions by about 26 percent compared to CO emissions in Alternative A (Table 2, Cain et al. 1999).

A further refinement of Alternative E would be to limit the daily (or hourly) number of 2-stroke engines entering to a 7-year average, and allow entrance to the park during peak hours only by express lane with a minimum speed of 15 mph not to exceed 25 mph. This would reduce CO emissions by 46 percent of those in Alternative A. DEQ estimates that these emission reductions would reduce CO 1-hour maximum levels in a worse case scenario at the West Entrance to about 55 percent of the level in Alternative A—a level that appears to avoid violating the 1-hour standards (Table 1, Alternative E-2, Cain et al. 1999). These refinements should be incorporated into the Alternative E prior to any adaptive management recommendations proposed in Alternative E.

Conclusion

Page 263, last line, "...if monitoring indicates..." What type of monitoring does NPS intend to conduct? No where does this document state that NPS will set up NAAQS monitoring sites to determine ambient air quality impacts. NPS should monitor for both ambient air quality (NAAQS) and possible OSHA levels to determine impacts of the alternatives on

employees, visitors and natural resources.

Impacts of Implementing Alternative F

Effects on Public Health

Page 275, Paragraph 2, sentence 4, "...snowmobile industry...": This section should include what the Park Service can do to reduce employee exposure and improve public health without, or in addition to, changes in engine, fuel, and lube technologies. For example, NPS can relocate an area where snowmobiles reform their groups to areas where air flow is known to be better than the present (Alternative A) situation. Please see our comments on page 161, moving the kiosk. "Cleaner technology" will not, in itself, always reduce adverse impacts to air quality. Eliminating traffic congestion such as exclusive use of express lanes would significantly reduce emissions at the West Entrance. Further, Kado's study shows that air flow at Old Faithful and Madison Junctions is better than at the West Entrance even though more snowmobiles were at these locations.

Air Quality

Page 278, paragraph two, first sentence: Closing the road from West Yellowstone to Old Faithful is not the only alternative to eliminate the emissions from these (snowmobile) vehicles. The exclusive use of electric snowmobiles that could be developed in the time frame covered in this DEIS would have an air quality impact similar that under to Alternative F, closing the road. It also would improve air quality and noise throughout the Park. Expected advances in technology need to be more fully considered.

Conclusion

Page 278, third full paragraph, last sentence "...would protect YNP's designation as a Class 1 clean air area..." YNP has been designated a Class I air quality area by statute, so its designation would not be removed.

Impacts of Implementing Alternative G

Air Quality

Page 291, first paragraph: The use of mass-transit snowcoaches in Alternative G using the newer emission control systems like the van-conversion snowcoaches would greatly reduce CO from vehicle emissions to about 2 to 4 percent of CO emissions under Alternative A. Based on DEQ's modeling analyses, 1-hour peak CO levels for a worse case scenario at the West Entrance would be about 11 to 18 percent of those levels under Alternative A. Alternative G would reduce CO levels below any other Alternative except Alternative F, Closing the roads.

Effects on Adjacent Lands (page 298)

National Forest Lands

Alternative B

Page 299, Specific Impacts on the GNF: The last sentence states that, "Over time, this alternative could decrease the use on the Hebgen Lake District if.....causes fewer people

to come to the area." The following sentence should be added: "Conversely implementing this alternative would likely increase the use of areas in this district quickly resulting in significant actions regarding area closures and restrictions on winter recreation in the Hebgen Lake Basin, Cabin/Taylor Fork and Buffalo Horn/Porcupine areas of the Gallatin National Forest."

Specific Impacts on the Beaverhead-Deerlodge NF: What should be added to the last sentence in this section is: "Conversely implementing this alternative would likely increase the use of areas in this district too quickly resulting in significant actions regarding area closures and restrictions on winter recreation."

Alternative C

Same comments as above.

Alternative F (Page 301)

Add the following new subsection as follows: "Specific Impacts on the Gallatin and Beaverhead-Deerlodge NF. Restricting snowmobile use in the Park may increase snowmobile use on these forests. With any contemplated closures there must be, as part of the closure process, an in-depth analysis of effects on national forest lands where displacement of recreationists is anticipated. The proposed closure areas would have the greatest effect on forest lands in the general area closest to the Park entrance proposed for closure. For example, if it was the West entrance, the forest lands needing in-depth impact analysis would be the Hebgen Lake Basin to Porcupine area. The forest lands and the effect the closure might have on the natural resources on those lands is directly relevant to YNP. The lands on these forests are occupied by large numbers of wildlife shared both by Montana and YNP. These wildlife seasonally use both areas and include elk, moose, bison, lynx, wolverine, pine marten, etc."

Alternative F (page 302)

Specific Impacts on the Gallatin NF: After the second sentence add the following: "This increase could be significant in the Hebgen Lake Basin, Cabin/Taylor Fork and Buffalo Horn/Porcupine areas. Although it may only be short term, it could result in significant and relatively quick changes to forest winter recreation management in this portion of the forest."

Specific Impacts on the Beaverhead-Deerlodge NF: Add the following: "This increase could be significant and although it may be short term, it could result in significant and relatively quick changes to forest winter recreation management in portions of the forest."

Alternative G (page 303)

Specific Impacts on the GNF: Add the following, "By restricting access to the park to mass transit vehicles only, snowmobiles could be displaced to adjacent forest lands with effects similar to Alternative B."

Effects on States

Pg. 310: There was no mention or discussion of effects on State land (of any kind) in Montana. With that we offer the following: "Montana Department of Fish, Wildlife and Parks owns important wildlife habitat in the heart of the Gallatin Canyon. These lands lie in a checkerboard arrangement with the Gallatin National Forest. Any of the alternatives that propose closing access to the park from West Yellowstone could lead to impacts on important and sensitive wildlife winter ranges in the Gallatin Canyon. These lands provide important winter habitat for elk, moose and bison. These lands are primarily situated from the Gallatin Canyon park entrance north to the Porcupine drainage and also includes land in the Taylor Fork. Montana Department of Fish, Wildlife and Park's effectiveness in managing winter recreation is directly influenced by Gallatin National Forest management due to the checkerboard pattern. Effects and concerns addressed above in all the alternatives are directly relevant to these properties."

Relationship Between Local Short-Term Uses & Long-Term Productivity (Page 315)

Pg. 315, Second Paragraph of Section: Although actions may be specific to the three parks, effects go far beyond the park boundaries. In Montana, those potential effects on wildlife can be assumed to follow the migrating ungulates leaving the park to winter in Montana. In short, the activities may be local but their effects are felt beyond the immediate area.

Pg. 315, Third Paragraph of section: In order for the adaptive part of Alternative E to be correctly applied, the monitoring would need to take place in a much larger area outside the park as well. This will require resources. Because YNP is not a contained ecosystem, we share with the Park important wildlife resources. It is wrong not to consider the true effects of implementing alternatives without considering, in-depth, the full range of impacts to these resources in Montana. To not do this from a wildlife perspective would contradict the concepts of coordinated/ecosystem management.

Cumulative Impacts Analyses (Page 318)**Assumptions and Methodology**

Pg. 318 - 319: To state that the alternatives "do not vary greatly in terms of general cumulative impacts" is incorrect. Alternatives that close the snowmobile access at West Yellowstone could increase use outside the park. This increased use could result in biological and social consequences to sensitive areas in the Gallatin and Madison areas. These impacts could be greater than the impacts the NPS has identified for within the interior of the park.

Air Quality**Areas of Concern****Potential Sources of Impact****Additional Impacts of Proposed Actions**

Page 323, paragraph 2, sentence four: "...EPA proposed regulations..." This section should also identify that existing regulations may impact alternatives in this DEIS. For example, if ambient air quality levels exceeded standards at the West Entrance, plans to correct the situation will be developed and implemented.

Cumulative Impacts by Resource (Page 319)**Wildlife (Page 323)**

Pg. 323 - 324: This has redefined the concept of cumulative impact analysis relating to proposed actions. There is very little if any substantive discussion/summary of impacts proposed in the DEIS relating to surrounding areas. Where is the discussion on impacts to State and National Forest management issues created by the alternatives? Where is the acknowledgment that impacts from some of the alternatives, even if they were of some "short" term nature, could be very significant in affecting natural resource management decisions on neighboring jurisdictions.

In Montana there could be impact as a result of closing the West Entrance to snowmobiling in the Gallatin and Madison Mountain Ranges. With the displacement of snowmobile activity to the north, in an area already providing high use winter recreation activities, will come impacts to wintering wildlife, lynx, wolverine and pine marten habitat and human congestion. Many of the effects from existing increases in winter recreation activities are already creating some level of increasing concern. With an influx of additional recreationists, that in all likelihood will take place with some of the alternatives, these problems will be exacerbated over a very short period of time. This displacement to the north of winter recreationists could be short or long term in nature.

The DEIS inadequately documents and discusses the impacts of the alternatives in the context of adding one more additional burden or concern in an area already receiving or being affected by many other types of human activity that the parks do not have to deal with inside their borders.

Pg. 324, "Potential Sources of Impacts": We offer the following clarification to the discussion of the Quake Lake bighorn sheep die-off:

The wildlife biologist responsible for this sheep population indicates that this population of sheep was increasing as a result of good lamb recruitment. The primary cause of the die-off is directly attributable to the winter of 96-97 (it was extremely harsh in terms of snow depth, temperature and length on the range these sheep occupied) and an associated pneumonia winter kill. Because of the relatively sudden and very quick die-off, we do not attribute all the other things listed in this paragraph as contributing significantly to the die-off. This was not a slow decline that could be indicative of an accumulation of all the "noise" that was mentioned in this paragraph. It was sudden and nearly complete. These

kinds of die-offs have occurred throughout the northern Rocky Mountain Region. In fact, similar die-offs (4 to be exact) occurred during the 1990's in Southwestern Montana and Idaho. These die-offs occurred in areas where very little if any development was occurring. Predation, illegal hunting and winter recreational use of winter ranges did not contribute to these sudden and catastrophic die-offs.

Pg. 324, Additional Impact of the Proposed Actions: Ungulates leave the park because there is high quality winter range available at lower elevations north of the park in Montana. In the Gallatin and Madison, when elk leave the park to winter in Montana, they do not return until the spring. Winter ranges in the Gallatin and Madison can in no way be replaced by those in the park if these populations are going to survive and remain viable over time. In short, it is not the presence of other sources of impact within the park that is critical to herd survival, it is mitigation and management of those impacts on the winter ranges outside the park that will determine the critical element to herd survival. This is completely relevant to the Gallatin and Madison winter ranges. As an example, approximately 75% of the winter range for the Gallatin elk herd that leaves YNP to winter in the Gallatin Canyon lies outside YNP.

The Firehole population is an exception, but accounts for a small fraction of elk that live, reproduce, migrate and die and which depend on the northwest portion of the Park for spring, summer and fall ranges. Most of the elk leave, because of winter conditions in YNP, to winter in Montana.

Although the last two sentences in the paragraph are accurate, this section does not go the additional needed step in acknowledging the effects of displaced recreation resulting from some of the alternatives on the important winter ranges in the Gallatin and Madison that winter several thousand elk.

It is not a full and complete discussion of cumulative impact if it is limited to just the area within the park boundaries.

Threatened and Endangered Species (Page 325)

Pg. 325 -326: An area of inadequacy exists in the discussion of wolves, bald eagles and Canada lynx. The Gallatin and Madison ranges are occupied lynx habitat. Again, displacement, resulting from some of the alternatives, of winter recreation to the north has not been fully analyzed. Bald eagles, particularly those nesting in the Hebgen Lake area could be impacted by recreational displacement from some of the alternatives, again not fully analyzed. Impacts due to their proximity to West Yellowstone, could increase. Effects of displacement from some of the alternatives on wolves and their use of winter ranges in the Gallatin and Madison again were not fully analyzed. Since a large number of elk exit the northwest corner of the park to winter in Montana, wolves associated with the park follow. Again, they end up in the same places north of the park that are creating concerns over potentially significant increases in winter recreation, resulting from some of the alternatives. In short, a failure to fully analyze/discuss the cumulative impacts that may occur for these species that utilize areas in and outside the park.

It is not a full and complete discussion of cumulative impact if it is limited to just the area within the park boundaries.

Species of Special Concern (Page 326)

Areas of concern (page 326): It is not a full and complete discussion of cumulative impact if it is limited to just the area within the park boundaries.

Additional Impacts of the Proposed Actions (page 326). How can the last sentence in this section state that, "All alternatives would have minor or negligible impacts", if the area analyzed has been restricted to artificial boundaries that do not confine wildlife species?

APPENDICES

Volume II, Appendix H, Air Quality Studies:

H-2, Table 1, last row, column 3: The statements imply that DEQ's monitoring is more extensive than is the case. Please correct it to reflect that DEQ monitors PM-10 at one site in West Yellowstone (not in the Park) and CO at the West Entrance.

Page H2, Paragraph 1, first sentence: Please correct the statements because there have been no violations of national or state ambient air quality standards. It is incorrect to compare these readings to NAAQS. We recommend changing the lines to compare these levels to OSHA or NIOSH standards.

Please refer to our comments for DEIS pages 93, 94, 95, 109, 161, 164, 181, 182, and 323. The manner that this paragraph is compiled implies that violations were recorded by a SLAMS site, which is not true.

Page H-2 and H-3 We recommend that the abstract and major findings be from these studies be included for those reports that are final, and a status summary given for those that are not final.

Page H-3, first bullet, second sentence: "Ingersol" is misspelled (Ingersoll).

Page H-7, top partial paragraph, last sentence: "exceeding national air quality standards" There are no data collected according to the standard reference method (in Snook's study) to show visitors were exposed to carbon monoxide levels "exceeding national ambient air quality standards." The method Snook used to develop this data was not taken according to Reference Method 40 CFR sec 50.11 Appendix C or equivalent method. No violations of ambient air quality standards have been recorded or presented to date. High levels of carbon monoxide have been reported that may approach federal standards for workers.

**YELLOWSTONE NATIONAL PARK
WINTER USE PLAN - DRAFT EIS**

Montana's Proposed Preferred Alternative

This alternative is based on adaptive management for emissions and wildlife. The alternative also includes the creation of an advisory committee to make recommendations to the Park Service with regards to the research, monitoring and other activities to make adaptive management successful and to make recommendations and create partnerships between local communities and NPS.

This alternative emphasizes the protection of wildlife and other natural resources while allowing park visitors access to a range of winter recreation experiences. It uses an adaptive planning approach that allows the results of new and ongoing research and monitoring to be incorporated. Using criteria stated within Executive Order 11644 (as amended) and its implementing regulation (36 CFR 2.18), monitoring results demonstrating disturbance to wildlife or damage to park resources would be cause to implement actions for mitigating these conditions (e.g. closure to snowmobile use). The alternative calls for the institution of an advisory committee to make recommendations about adaptive management studies, standards for addressing mobile emission and sound issues, as well as increasing partnerships with local communities and private groups. Local, county, state and federal agencies, as well as representatives from the snowmobile industry, local communities and environmental groups, would participate on this committee.

Actions Common to All Three Park Units

- This alternative would be a commitment to the development of acceptable measures for mitigating impacts, consistent with criteria in 36 CFR 2.18.
- This alternative encourages partnerships and public participation to address natural resource management issues, mobile emission and sound issues, and greater communications with local communities, by establishing an advisory committee (established by the Secretary of the Interior under the Federal Advisory Committee Act.) The advisory committee would be divided in two subcommittees with specific functions. One subcommittee will serve as a technical advisory committee to the NPS regarding the on-going research and monitoring necessary for adaptive management. It is appropriate for state agencies who manage wildlife outside the Parks and air quality specialists who are required to enforce Clean Air standards to partner with the Park Service and other federal agencies in this adaptive

management approach. The second subcommittee would be composed of representatives of the local private sector to enhance partnerships between the local communities and NPS and provide for better means to communicate with the visiting public.

TECHNICAL SUBCOMMITTEE: The subcommittee would provide recommendations on environmental studies needed under the alternative's adaptive planning approach. The subcommittee would be comprised of 10 people. They would include representatives of the Idaho, Montana and Wyoming environmental quality agencies and state park or fish and game agencies who's representatives would be nominated by the respective state's governors and appointed by the Secretary. In addition, the subcommittee would include two representatives of the National Park Service, one representative of the EPA nominated by the Region 8 Administrator and one representative of the US Fish and Wildlife Service.

LOCAL SUBCOMMITTEE: The subcommittee would provide recommendations on increased partnerships to improve visitor experiences and enhanced communications for interested parties. The role that local communities play in providing a "pleasuring ground" for the American people is vitally important. The subcommittee would be comprised of 14 individuals. One representative nominated by each board of county commissioners of: Gallatin County, Montana, Park County, Montana, Teton County, Wyoming, Park County, Wyoming, and Fremont County, Idaho; two representatives of different environmental organizations, one representative of a local chamber of commerce and one representative of a local snowmobile organization appointed by the secretary; three representative of the departments of commerce or their equivalent in Idaho, Montana and Wyoming who will be nominated by the respective governor of the state, and two representative of the National Park Service appointed by the secretary.

Require the sale of only Bio-Base Fuels (10% ethanol blend fuel and synthetic low-emission oil) within the Parks beginning with the 2001-02 winter season. All commercial snowmobile operators in West Yellowstone, Jackson and at the other entrances would also be required to use Bio-Base Fuels for all snowmobiles they send into the Parks.

Establish an interim visitor carrying capacity to address overcrowding concerns, trail maintenance issues, and air quality concerns based upon past use patterns and air quality monitoring. Use adaptive planning to address long-term carrying capacity

for visitors and wildlife.

- Adaptive management for air quality and wildlife management would be done through review of data collected, determination of new study needs, and set the establishment of policies for managing resources based on the scientific information that is collected. Adaptive management for wildlife would be based upon results of scientific research coordinated through a cooperative effort between the National Park Service and Montana, Wyoming and Idaho fish and game agencies. Research needs and priorities would be identified by the Technical Subcommittee. The National Park Service and the respective state agencies would be responsible for securing the necessary funding to conduct appropriate research.
- Establish a night-time closure to entry into YNP, GTNP, and the Parkway from 10 PM to 6 AM to promote public safety, improve trail maintenance and protect wildlife.
- Implement aggressive information programs in cooperation with state snowmobile associations and other winter recreation safety programs to encourage appropriate winter recreation behavior and etiquette. This process will be done in conjunction with the local subcommittee of the advisory committee.
- To increase interpretive opportunities related to the unique aspects of the parks, the Parkway, and the winter environment, provide interpretive programs at designated areas and warming huts in both parks, and in snowcoaches serving the north and west sides of YNP. Provide interpretive ski tours and programs near Tower and Canyon in YNP and near Moose, Colter Bay, and Flagg Ranch in GTNP and the Parkway.
- Implement an informational program on snow and trail conditions, points of interest, and available recreational opportunities to make visitors aware of all types of winter recreation opportunities possibly in part through partnerships that establish NPS-visitor contact opportunities in gateway communities.
- NPS would support an educational video for use in gateway communities and at all area rental shops to inform rental snowmobile operators regarding snowmobile safety, operational laws and etiquette, and park resource management.
- Support strict enforcement of the posted speed limit, with a maximum speed limit of 45 mph.
- Also, NPS would disperse use throughout the Parks by better utilizing existing visitor facilities for over-night lodging, food services and warming huts to reduce impacts on natural resources and to assure a quality visitor experience. Provide additional portable warming huts at areas where facilities do not presently exist.

Actions for Yellowstone National Park

- Continue scientific studies and monitoring related to park resources and winter visitor use. NPS will consult with the technical advisory committee on studies and monitoring, and the prioritization of these activities. If these scientific studies and subsequent reviews substantiate that human presence or activities have a detrimental effect on park resources that could not otherwise be mitigated, the closure of selected areas of the park to visitor use, including sections of roads, could result, any federal action taken will be done in accordance with NEPA, including a public comment period, and be tiered off this document. Prior to any closure of roads, a 1-year notice would be required before any closure is implemented.
- Prohibit plowed road access anywhere in YNP during the winter season, with the exception of continued automobile access to northern attractions in the Gardiner, Mammoth, Tower-Roosevelt and Cooke City areas.
- Provide expanded non-motorized opportunities/trails away from main motorized routes by providing regular skier shuttles from Old Faithful and West Yellowstone to non-motorized areas away from these sites.
- Restrict non-motorized uses in wildlife winter range to travel on designated trails only.
- Where possible, use separate areas for different winter uses as part of adaptive management.
- Address congestion and visual concerns regarding snowmobile parking at Old Faithful by relocating snowmobile parking away from the Visitor Center area to the Old Faithful Lodge area. Reserve parking in the immediate Visitor Center area for only snowcoaches and ADA access for snowmobilers.
- Require all west gate entrance passes to be pre-purchased at local outlets or at the Public Lands Information Center in West Yellowstone for entrance into the Park during peak morning hours. Promote the sale of these pre-paid passes at all other entrance times from the West entrance and at all other entrances. These activities will be undertaken with consultation of the local subcommittee.
- Keep the length of the winter use season as the period from mid-December to mid-March.

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Montana Department of Environmental Quality

PRELIMINARY AIR DISPERSION MODELING ANALYSIS OF YELLOWSTONE NATIONAL PARK WEST ENTRANCE WINTERTIME CARBON MONOXIDE EMISSIONS

INTRODUCTION

The Montana Department of Environmental Quality (DEQ) participated as part of the Governor's review team on the Winter Use Plan Draft Environmental Impact Statement for the Yellowstone and Grand Teton National Parks and John D. Rockefeller Jr. Memorial Parkway (DEIS). DEQ was asked to investigate the document for errors, and explore the science of air and water quality as they relate to each of the proposed seven alternatives. Each alternative in the DEIS provided a different scenario and impacts on air and water quality, from Alternative A, No Action, to Alternative F, Close the roads from Mammoth and West Yellowstone, leaving only the roads from Flagg Ranch and Cody open.

The DEIS said that the final Environmental Impact Statement (EIS) might use modeling to evaluate the alternatives. Among other analyses, DEQ conducted preliminary air dispersion modeling of the possible impacts to air quality from the activities described in the DEIS alternatives. This analysis was performed to assist in the decision making process but does not necessarily represent actual events. The model predicted Carbon

Monoxide(CO) concentrations that are thought to have a +/- 30% to 40% confidence level due to limited existing meteorological and CO emissions data. Monitoring data from this past year at the west entrance indicated the average carbon monoxide levels over an 8-hour period may exceed the 9.0 parts per million (ppm) National Ambient Air Quality Standard (NAAQS) before the 1-hour 23.0 ppm Montana standard would be exceeded. However, more data collection is necessary before a final determination can be made. For completeness purposes, this 1-hour standard was examined in the final analysis.

A modeling analysis was performed by the Monitoring and Data Management Bureau, DEQ, to estimate the CO concentrations from vehicle emissions near the roadways at the west entrance of Yellowstone National Park. A U. S. Environmental Protection Agency (EPA) "hot spot" or intersection model, CAL3QHC, was used to predict the CO concentrations from vehicles entering and exiting the Park during the wintertime. This model predicts concentrations of inert air pollutants such as CO from motor vehicle emissions along roadways one hour at a time. A line source dispersion model and a traffic algorithm for estimating vehicular queue lengths at signalized intersections is incorporated into the model. It is considered a screening model that provides a quick, worse case analysis using several broad assumptions including meteorological and site characteristics to estimate CO concentrations. Other air pollution models are available, referred to as "refined", for a more complete, in-depth analysis that requires on-site meteorological data.

The two heaviest wintertime hourly traffic periods were examined during a 24-hour period; these occurred during the morning and evening periods as the vehicles entered and left the Park. Nine total alternatives were examined, A through G; seven of the alternatives were obtained from the DEIS. One of the seven, Alternative E, was slightly modified (E-2) by

the local communities and included in this analysis. Howard Haines, DEQ, provided Alternative H; the information for this alternative was suggested in the DEIS, Page 208.

Each option contained variations on the hourly cycle time, fuel usage, type and number of vehicles entering and exiting the entrance. This information and snowmobile CO emissions data were derived from the alternatives in the DEIS, various supporting reports including White et al. (1998, 1999), Kado et al. (1999), and Bishop (1998, 1999), Yellowstone National Park Visitor Services, and confirmed through communications with these researchers and Yellowstone National Park staff. Cycle time is the elapsed time from the passage of one vehicle to the next as they stop and go through the entrance station, much as would occur at an intersection with a traffic signal. The other vehicular CO emission factors were obtained from the USEPA Compilation of Air Pollutant Emission Factors – Volume II: Mobile Sources, AP-42, and Emission Facts: Idling Vehicle Emissions. These emission factors were selected for high altitude and wintertime temperatures.

The air dispersion model used for this study has limits to the maximum input traveling and idling CO emission rates, 1,000 grams/mile and 1,000 grams/hour, respectively. When an alternative scenario required an emission rate greater than one of these maximums, for example Alternative A, the limit was entered into the model.

FEDERAL AND MONTANA HOURLY CO STANDARDS

The 1-hour National Ambient Air Quality Standard (NAAQS) for CO is 35.0 ppm not to be exceeded more than once a calendar year. The hourly Montana Ambient Air Quality Standard (MAAQS) is 23.0 ppm for CO not to

be exceeded more than once a calendar year, 34 percent less than the Federal standard. The Montana standard was based on an epidemiological evaluation conducted by Montana during 1979-1980. Other states with a different hourly CO standard than the federal one are California and New Mexico, 20.0 and 13.1 ppm, respectively. The 8-hour average CO NAAQS and MAAQS standards are 9.0 ppm not to be exceeded more than once a calendar year.

MODELING VERSUS MONITORING

The model predicts the maximum 1-hour CO concentrations at each location (receptor) and wind direction that has been manually entered by the user; these locations represent areas where the public has access. According to the model requirements, these receptors cannot be located within 10 feet (3.0 meters) of the traveled roadways or within tollbooths (kiosks), intersections, or crosswalks. Another receptor is included to represent the local CO monitoring station if one exists. Monitoring stations are placed near the sources of pollutants according to stringent USEPA siting criteria. For a microscale CO site, such as the one located at the west entrance of the Park, the inlet to a CO measurement instrument must be between 2 and 10 meters (7 and 33 feet) from the roadway edge and sufficiently distant from obstacles that obstruct air flow such as buildings and vegetation to assure representative data.

The locations of the highest 1-hour CO concentrations predicted by the model will not necessarily correspond to the location of the CO monitoring station receptor. The type, number, and activity of the vehicles (entering or exiting the park entrance), and wind direction will affect where the model calculates the maximum CO concentration.

Compliance with the hourly National and Montana CO standards is determined by the second highest hourly concentration, but the model only provides the first. Therefore, the model results can only be applied as a rough estimate whether compliance with the standards will occur. Also, air pollution modeling focuses on the public's exposure to air pollution so the highest CO concentration predicted, regardless of the location, is used for comparison to the standards. In reality, the data collected at the monitoring inlet will determine the area's compliance status.

After the preliminary analysis, selected alternatives were evaluated in reference to both 1-hour CO NAAQS and MAAQS. CAL3QHC does not provide any information pertaining to the 8-hour average CO standards. A "persistence factor" can be applied to the 1-hour concentrations to estimate the 8-hour CO concentrations. A persistence factor indicates the longevity of the carbon monoxide in the atmosphere within an area and is usually estimated using on-site CO data. However, due to limited wintertime CO data collected at the west entrance, a typical persistence factor was used in this analysis, 0.75.

BACKGROUND CO CONCENTRATION

CAL3QHC is an intersection or "hot spot" model developed to examine the impacts of vehicles entering and leaving a small study area on an hourly basis. This model evaluates only the direct effects of CO emitted by the vehicles included in the model input file. The results do not include CO impacts from all other sources that are close enough to affect the air quality at the receptor locations. Indirect impacts from these sources are added to the model results as "background" CO. These sources include CO from residential wood burning and vehicle emissions in West Yellowstone. The CAL3QHC model also does not have any way to

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account for residual CO still remaining in the atmosphere from emissions during a previous time period. CAL3QHC starts each analysis with the assumption that the current CO level is zero. This assumption is often appropriate, but under the stagnant conditions resulting from strong and persistent atmospheric temperature inversions and very low wind speeds often present in Montana, residual CO can have a dramatic effect on ambient CO concentrations. Carbon monoxide is not a reactive species and unless some dispersion is available, CO ambient levels can remain high for several hours after the emissions have been reduced to very low levels. These residual CO effects must also be factored into the background value used to determine the final model results.

Generally, a background value is obtained from direct measurement at the site of interest. In October 1998, DEQ installed a microscale carbon monoxide monitoring station (30-031-0013) on the northeast side of the Yellowstone National Park west entrance. Due to machine malfunction, minimal wintertime data was collected. The highest hourly CO concentration, 18.1 ppm (parts per million) was measured on February 13, 1999 for the 5:00 to 6:00 P.M. period. The CO concentrations decreased to 3.1 ppm for the 11:00 P.M. to 12:00 A.M. period. Reviewing the data and using the Monitoring and Data Management Bureau staff professional judgement, a 5.0 ppm background CO concentration was selected to represent the worse case residual impact of CO during stagnation periods.

RESULTS

The following is a summary table of the hourly traveling and idling vehicular CO emissions, and the maximum 1-hour CO concentrations predicted by the air dispersion model for each of the nine alternatives including the 5.0 ppm background CO concentration. Also listed are the percentages of the alternative emissions and concentrations, relative to Alternative A (Baseline).

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Summary table of the hourly traveling and idling vehicle CO emissions, and the maximum 1-hour CO concentrations predicted by the air dispersion model for each of the nine alternatives including the background CO concentrations; concentrations below the 35.0 ppm 1-hour NAAQS are indicated.

Refers	Description	Hourly Vehicle Emissions CO (ppm)		Maximum 1-hour CO		Hourly Vehicle Emissions CO (ppm)	Maximum 1-hour CO	Total Maximum 1-hour CO (ppm)		Percentage of Maximum 1-hour CO	
		A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
A	Background only	35.0 (0.0000)	35.0 (0.0000)	-	-	35.0 (0.0000)	-	35.0 (0.0000)	35.0 (0.0000)	100	100
B	Background + 1000 cars	35.0 (0.0000)	35.0 (0.0000)	0.1	0.1	35.1 (0.0000)	0.1	35.1 (0.0000)	35.1 (0.0000)	100	100
C	Background + 1000 cars + 1000 buses	35.0 (0.0000)	35.0 (0.0000)	0.1	0.1	35.1 (0.0000)	0.1	35.1 (0.0000)	35.1 (0.0000)	100	100
D	Background + 1000 cars + 1000 buses + 1000 trucks	35.0 (0.0000)	35.0 (0.0000)	0.1	0.1	35.1 (0.0000)	0.1	35.1 (0.0000)	35.1 (0.0000)	100	100
E	Background + 1000 cars + 1000 buses + 1000 trucks + 1000 vans	35.0 (0.0000)	35.0 (0.0000)	0.1	0.1	35.1 (0.0000)	0.1	35.1 (0.0000)	35.1 (0.0000)	100	100
F	Background + 1000 cars + 1000 buses + 1000 trucks + 1000 vans + 1000 motorcycles	35.0 (0.0000)	35.0 (0.0000)	0.1	0.1	35.1 (0.0000)	0.1	35.1 (0.0000)	35.1 (0.0000)	100	100
G	Background + 1000 cars + 1000 buses + 1000 trucks + 1000 vans + 1000 motorcycles + 1000 snowmobiles	35.0 (0.0000)	35.0 (0.0000)	0.1	0.1	35.1 (0.0000)	0.1	35.1 (0.0000)	35.1 (0.0000)	100	100
H	Background + 1000 cars + 1000 buses + 1000 trucks + 1000 vans + 1000 motorcycles + 1000 snowmobiles + 1000 ATVs	35.0 (0.0000)	35.0 (0.0000)	0.1	0.1	35.1 (0.0000)	0.1	35.1 (0.0000)	35.1 (0.0000)	100	100
I	Background + 1000 cars + 1000 buses + 1000 trucks + 1000 vans + 1000 motorcycles + 1000 snowmobiles + 1000 ATVs + 1000 boats	35.0 (0.0000)	35.0 (0.0000)	0.1	0.1	35.1 (0.0000)	0.1	35.1 (0.0000)	35.1 (0.0000)	100	100
J	Background + 1000 cars + 1000 buses + 1000 trucks + 1000 vans + 1000 motorcycles + 1000 snowmobiles + 1000 ATVs + 1000 boats + 1000 planes	35.0 (0.0000)	35.0 (0.0000)	0.1	0.1	35.1 (0.0000)	0.1	35.1 (0.0000)	35.1 (0.0000)	100	100

Note: 1 ppm = 1.56 mg/m³
1 mg/m³ = 0.65 ppm

The following table lists the percentage source contribution and source contribution to the maximum 1-hour CO concentrations of the nine alternatives without the 35.0 ppm background CO concentration; concentrations below the 1-hour NAAQS are indicated.

Alternative	Percentage Source Contribution					CO Concentration (ppm)				
	Background	Motorists	Marine	Aviation	Other	Background	Motorists	Marine	Aviation	Other
A	100	0	0	0	0	35.0	0	0	0	0
B	99.9	0.1	0	0	0	35.0	0.1	0	0	0
C	99.9	0.1	0	0	0	35.0	0.1	0	0	0
D	99.9	0.1	0	0	0	35.0	0.1	0	0	0
E	99.9	0.1	0	0	0	35.0	0.1	0	0	0
F	99.9	0.1	0	0	0	35.0	0.1	0	0	0
G	99.9	0.1	0	0	0	35.0	0.1	0	0	0
H	99.9	0.1	0	0	0	35.0	0.1	0	0	0
I	99.9	0.1	0	0	0	35.0	0.1	0	0	0
J	99.9	0.1	0	0	0	35.0	0.1	0	0	0

Model results for Alternatives A and E-1, an Alternative A derivative, exceeded the 1-hour CO NAAQS for the morning period whereas none of the alternatives exceeded the 1-hour CO NAAQS for the evening indicating that the morning period was the limiting time period. The model results also revealed that the snowmobiles traveling in the express lane had the greatest contributions to the CO concentrations, over 98 percent, due to the high CO emission factors of the 5 miles per hour (MPH) traveling speed. Increasing the traveling speed to 15 MPH would have decreased the emissions by about 42 and 54 percent, respectively, and an exceedance of the 35 ppm NAAQS would not have occurred. The use of oxygenated fuel and low emission lube oil did not reduce the CO emissions sufficiently to prevent an exceedance of the 1-hour NAAQS. The low traveling speed of the snowcoaches, 5 MPH, had a large CO emission factor, but the snowcoaches had little impact on the estimated CO concentrations due to their substantially lower numbers.

Using the 0.75 persistence factor, only the Alternative A morning period vehicle emissions would have exceeded the 8-hour CO NAAQS. However, this is a mathematical operation that does not necessarily reflect reality. It is more likely for an exceedance of the 1-hour NAAQS to occur during the morning period and an exceedance of the 8-hour average NAAQS to occur in the late afternoon when stagnation conditions steadily intensify as demonstrated by the CO concentrations used to estimate the background CO concentration. On February 13, 1999, the hourly CO concentrations steadily increased to 8.1 ppm during 4:00 to 5:00 P.M. period, peaked to 18.1 ppm during the 5:00 to 6:00 P.M. period, then slowly decreased to 3.1 ppm for the 11:00 P.M. to 12:00 A.M. period. This pattern shows the strength of stable wintertime atmospheric conditions on the poor dispersion of CO and the impact of residual CO discussed previously.

The predicted morning hourly CO concentration calculated for Alternative A was almost 40 percent greater than the 31.0 ppm measured by grab bag sampling (DEIS). The predicted maximum 1-hour results represent a "worst case" scenario where the maximum emissions coincide with the worst dispersion conditions. Since the maximum emission scenarios only occur for a few hours each year the probability of these events occurring simultaneously is small. These events are a very high number of hourly snowmobiles (900+) with current emissions lined up at the park entrance traveling at low speeds, extremely stagnant wintertime atmospheric conditions with very low wind speeds essentially in line with the traffic lane, and the residual effect of high snowmobile activity that occurred during the previous hour. Given the ambient levels that have been reported to date and these modeling results, it is apparent that the potential for violations of the ambient CO standards is large. The greatest uncertainty in this analysis is probably the CO emission rate determination. Snowmobile emissions are not as well studied as automobile emissions and it is the Monitoring and Data Management Bureau staff's professional judgement that the actual emissions could easily be $\pm 30 - 40$ percent more or less than those used in the modeling. Since the predicted result for the Alternative A morning scenario is nearly 40% greater than the CO standard, it is the opinion of the Monitoring and Data Management Bureau (MDMB) staff that if the current emission pattern persists and the CO monitor is left in place, a monitored violation will eventually occur.

Although there were twice as many diesel buses in Alternatives B and C as gasoline vehicles, diesel engines are more efficient in cold weather than gasoline engines as reflected in their CO emission factors so their emissions were less. The use of ethanol in gasoline vehicles reduced the CO emissions by about 20%, but the effect on the CO concentrations were insignificant due to the low vehicle volumes.

A similar modeling analysis using CAL3QHC was performed by MDMB on an intersection in Kalispell (Malfunction Junction: U.S. Highways 2 and 93), Montana. For comparison purposes, the highest 1-hour CO concentration estimated for this intersection was 20.4 ppm in 1998 including a 2.0 ppm background value. The modeled average wintertime hourly traffic was about 3,140 total road vehicles. However, passenger vehicles have substantially lower traveling CO emission rates than snowmobiles and the road traffic at the intersection was traveling four different directions. At 25 mph, road vehicles emit around 45 grams/mile CO compared to 348 grams/mile for current snowmobiles, about 87 percent less. As an example, assume 600 snowmobiles traveled one mile at 25 mph. Over 4,640 road vehicles would need to travel the same speed and distance to emit the same amount of CO. Idling CO emission rates are over 50 percent greater for road vehicles (771 grams/hour) than for snowmobiles (395 grams/hour).

Additional modeling was conducted on Alternatives A (baseline), E-2 (Alternative A with 15 MPH vehicle traveling speed), and H (in which 80 percent of the snowmobiles would be electric). The maximum number of snowmobiles that could pass the entrance station per hour under each alternative emission activity before a 1-hour CO NAAQS and MAAQS exceedance would occur was determined. These numbers of snowmobiles for each alternative are listed in the following table.

<u>Alternative</u>	Maximum Number of Snowmobiles Before 1- Hour CO NAAQS Exceedance (35.0 ppm)	Maximum Number of Snowmobiles Before 1- Hour CO MAAQS Exceedance (23.0 ppm)
A	558	345
E-2	1,170	700
H	2,790	1,725

Regardless of the alternative, there was about a 60 percent difference in the number of snowmobiles between the two standards. This is about 6 percent less than the mathematical difference between the two standards. There was also about a 40 percent difference between the two alternatives, regardless of the standard showing the impact of 80 percent electric snowmobiles on the reduction of CO emissions.

CONSIDERATIONS AND POTENTIAL CONTROL STRATEGIES

Re-entrained road dust due to the wintertime application of sanding traction materials has been a prevalent springtime PM-10 problem in Montana causing exceedances of the PM-10 NAAQS; (PM-10 is particulate 10 microns or less in aerodynamic diameter). Limited application of sand for winter traction does occur in some areas in the Park and near Gardiner, but DEQ has no information available to determine if there is a re-entrained road dust problem at spring thaw. To prevent this problem, the characteristics of the sanding material (i.e. size, durability, etc.), the amount of sanding material applied, and the frequent removal (i.e., sweeping) of the material should be included in the analysis of Alternatives B and C. In addition, the effects of re-entrained road dust on the new PM-2.5 NAAQS is

currently unknown; (PM-2.5 is particulate 2.5 microns or less in aerodynamic diameter). Although the PM-2.5 fraction in re-entrained road dust is probably small, it must be considered.

The release of CO from residential wood burning in West Yellowstone may have some impact on the CO measurements at the park west entrance. This portion of the measured CO concentration was considered part of the background CO concentration. Special ambient air monitoring must be conducted in Yellowstone Park before the impact from residential wood burning can be quantified. From studies conducted in other Montana communities by MADM, the contribution of CO from residential wood stoves during a wintertime day can vary from 20 to over 40 percent. Some past successful control strategies have been enforceable residential curtailment wood burning programs during high pollutant days and tax incentives or regulations for stove replacements with certified stoves of low CO emissions.

Requiring park entrance tickets to be pre-purchased and allowing relatively high vehicle speeds (25 mph or more) would substantially reduce CO emissions and may prevent violations of the state and federal standards.

Another control option discussed in the DEIS was the use of cleaner, alternate fuel technologies. Several new technologies are in various stages of development such as electric snowmobiles, 2-stage catalytic converters, 2-stroke direct fuel injection engines, 4-stroke engines for cold weather applications, and a biodegradable super-low emissions lubricant. The analysis of Alternative H shows what might be possible as these technologies develop

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SUMMARY

The application of USEPA CAL3QHC provided a preliminary air dispersion modeling analysis of the wintertime carbon monoxide emissions at Yellowstone National Park west entrance from the vehicle activities of nine scenarios primarily outlined in the Winter Use Plan Draft Environmental Impact Statement for the Yellowstone and Grand Teton National Parks and John D. Rockefeller Jr. Memorial Parkway (DEIS). However, it was not a study that reflected actual events due to limited existing meteorological and snowmobile CO emissions data that contributed to a $\pm 30 - 40$ percent confidence level, but the results can be used for comparative purposes. This "hot spot" or intersection model estimates the maximum 1-hour CO concentration at each inputted location and wind direction using broad on-site and meteorological assumptions. From limited on-site CO data, a 5.0 ppm background CO concentration was estimated. The highest trafficked morning and evening periods for the majority of alternatives were examined. From this analysis, the following conclusions were developed:

- Morning period Alternatives A and E-1, an Alternative A derivation, exceeded the 1-hour CO NAAQS. Snowmobiles traveling at very low speeds, 5 MPH, contributed over 98 percent to the CO concentrations due to the associated very large CO emission factors.
- Using oxygenated fuel with the low emission lube oil did not sufficiently reduce CO emissions and prevent an exceedance of the NAAQS at very low travel speeds, 5 MPH.
- Snowcoaches contributed less than one percent to the CO concentrations due to the low hourly volume even though their CO emission factors were high.

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- Although there were twice as many diesel buses in Alternatives B and C, diesel engines are more efficient in cold weather than gasoline engines as reflected in their lower CO emission factors so their emissions were less.

- The use of ethanol in gasoline vehicles significantly reduced the CO emissions by 20%, but the concentrations were so low due to the vehicle volumes that the impact was low.

- NAAQS would not be exceeded if snowmobile speeds though the entrance station were increased to 15 mph.

- Up to 558 snowmobiles per hour could be admitted into the Park without violating the one hour CO NAAQS. MAAQS would allow up to 345 machines to enter per hour.

- There was about a 60 percent difference in the number of snowmobiles between the 1-hour NAAQS and MAAQS using the same alternative emissions scenario. This is about 6 percent less than the mathematical difference between the two standards.

- No definitive information on the 8-hour NAAQS could be obtained from the modeling analysis.

- Further air dispersion modeling using representative on-site meteorological data and snowmobile CO emission factors is necessary to adequately quantify the CO emissions from wintertime vehicles at the west entrance of Yellowstone National Park.

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WEST YELLOWSTONE NATIONAL PARK ENTRANCE ASSUMPTIONS

- 5 total lanes: at 12 feet wide each; Lane 5 is farthest from CO monitoring station.
- Morning Period: 4 lanes used (Lanes 2-5).
- Evening Period: 3 lanes used (Lanes 1-3).
- CO monitoring station to edge of road 3.5 meters (11.5 feet) and 25.6 meters (84 feet) west of a hypothetical centerline that runs through the center of the ticket booths north to south.
- The canopy over the ticket booths has no effect on the CO atmospheric dispersion.

VEHICLE ASSUMPTIONS

- All vehicles move at a constant rate when entering or exiting the park.
- No vehicle stopped when exiting the park.
- Cycle time for vehicles that simulate a roadway intersection, except for the snowmobiles: 68 total seconds, 60 seconds red and 8 seconds green.

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- Cycle time for snowmobiles that simulate a roadway intersection: 30 total seconds, 24 seconds stop, and 6 seconds green time.

MODEL ASSUMPTIONS

- Assumed vehicular stoppage at the ticket booth simulates a signalized intersection.
- Worse case wind speed (1.0 meter per second).
- Averaging Time: 60 minutes.
- Wind Direction: every 5 degrees, 0 – 360 degrees wind is coming from
(0 = positive Y-axis).
- Surface Roughness Coefficient: 2833.0 cm (fir forest).
- Flat Topography.
- Surface type: at grade.
- Settling Velocity: 0.0 cm/s.
- Number of Receptors: 17; along south vehicle entrance queue (morning period) and along the north exit queue. Receptor height = 1.8 m (height of normal man). Receptors are location where the CO concentration is calculated. These locations must be at least 3.0 meters away from the edge of the road. They cannot be placed inside the park entrance ticket booths.
- Source Height = 0.0 m (default).
- Stability Class: D (stable atmospheric condition).
- Atmospheric Mixing Height: 1,000 meters for morning and evening periods (default).
- Saturation Flow Rate was to the default (1600).
- Signal Type was set to the default (pretimed).
- Arrival type was to the default (random arrivals).

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Low wind speeds and stable atmospheric conditions prohibit good dispersion of emitted CO away from its sources; low mixing heights keeps the carbon monoxide near the ground level.

ALTERNATIVES

The following is a brief description of each alternative:

Alternative A: No Action. No oxyfuels used.

Worse Case Morning Period: 8:00 – 9:00 A.M.

600 Gasoline Snowmobiles ¹ in Express Lane 2 at 10 mph; traveling emission factor = 800.0

grams per mile (gm/mi.)

300 Gasoline Snowmobiles in Lanes 3 and 4 at 5 mph; traveling emission factor = 1,000.0 gm/mi.

Idling emission factor = 395.00 grams per hour (gm/hr).

10 Gasoline Snowcoaches ² in Lane 5 at 5 mph; traveling emission factor = 1,000.0 gm/mi.

Idling emission factor = 487.0 gm/hr.

4 18-Wheelers Diesel Trucks ³ in Lane 5 at 5 mph, traveling emission factor = 47.5 gm/mi.

Idling emission factor = 94.6 gm/hr.

Diesel trucks followed the snowcoaches in Lane 5.

Worse Case Evening Period: 5:00 – 6:00 P.M.

1000 Gasoline Snowmobiles in Lanes 1 and 2 at 25 mph; traveling emission factor = 348.0 gm/mi.

12 Gasoline Snowcoaches in Lane 3 at 25 mph; traveling emission factor = 243.1 gm/mi.

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4 18-Wheelers Diesel Trucks in Lane 3 at 10 mph, traveling emission factor = 32.8 gm/mi.

Diesel trucks followed snowcoaches in Lane 3.

Alternative B: Only Wheeled, Public Shuttle Diesel Busses Used (DEIS, Vol. I., Page 27).

Worse Case Morning Period 8:00 – 9:00 A.M.:

20 Light Gasoline Trucks ⁴ in Lane 2 at 10 mph; traveling emission rate = 109.9 gm/mi.

Idling emission rate = 487.0 gm/hr.

3 Snowplow ⁵ in Lane 2 at 10 mph; traveling emission factor = 32.8 gm/mi.

10 Gasoline Personal Cars ⁶ in Lane 3 at 10 mph; traveling emission factor = 92.7 gm/mile.

Idling emission factor = 371 gm/hr.

42 (40 passenger) Touring Diesel Buses ⁷ in Lane 4 at 10 mph; traveling emission factor = 32.8 gm/mi.

Idling emission factor = 94.6 gm/hr.

12 Gasoline Shuttle Vans ⁸ (15 passenger) in Lane 5 at 10 mph; traveling emission factor = 109.9 gm/mi.

Idling emission factor = 487.0 gm/hr.

Trucks follow snowplow in Lane 2.

Worse Case Evening Period: 5:00 – 6:00 P.M.

40 Gasoline Personal Cars in Lane 1 at 25 mph; traveling emission factor ⁵ = 34.7 gm/mile.

3 Snowplow in Lane 1 at 10 mph, traveling emission rate = 32.8 gm/hr.

20 Light Gasoline Trucks in Lane 2 at 10 mph; traveling emission rate = 74.5 gm/mi.

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12 Gasoline Shuttle Vans in Lane 2 at 25 mph; traveling emission factor = 44.51 gm/mi.
 42 Diesel Buses in Lane 3 at 10 mph; traveling emission factor = 32.8 gm/mi.
 Vans followed Trucks in Lane 2.

Alternative C: Same as Alternative B, but use ethanol blend for all gas vehicles (DEIS, Vol. I, Page 30). All gasoline CO emission factors reduced by 20 percent.

Alternative D: same as Alternative A using given CO emission factors (DEIS, Vol. I, Page 10, Bishop and Stedman, 1999).

Alternative E-1: same as Alternative A with given CO emission factors (Revised Alternative E (9/27/99 – Wyoming), White and Carroll, 1998).

Alternative E-2: same as Alternative E-1 with All Vehicles ^{1,2} traveling at 15 miles per hour (MPH) without stopping at the park entrance (Revised Alternative E (9/27/99 Draft – Wyoming)).

Alternative F: no modeling due to no vehicles = 0.0 emissions.

Alternative G: Snowcoaches ² used only.
Worse Case Morning Period 8:00 – 9:00 A.M.:

120 Gasoline Snowcoaches in Lanes 5 and 4 at 10 mph; traveling emission factor = 109.9 gm/mi. (DEIS, Vol. I, Page 36).
Worse Case Evening Period: 5:00 – 6:00 P.M.
 120 Gasoline Snowcoaches in Lanes 1 and 2 at 10 mph; traveling emission factor = 109.9 gm/mi.

Alternative H: same as Alternative A, but with 80% Electric Snowmobiles.

This percentage was applied proportionally to the 600 entering snowmobiles without delay and 300 snowmobiles that stopped at the entrance (DEIS, Page 208 and Speech by Mike Finley, Superintendent, Yellowstone National Park, August 17, 1997 on CNN).

CO EMISSION FACTORS AND CALCULATIONS

¹ Following snowmobile data provided by Howard Haines, DEQ.

Alternative A: Baseline Gasoline CO Emissions:

Vehicle Miles/Hour	Grams/Mile	Grams/Hour
0	NA ^a	395
5	1741	NA
15	580	NA
25	348	NA
35	249	NA

^a NA = Not Applicable.

Ref: DEIS, p. 27, White et al., 1998.

Calculation for 10.0 mph: Graphed the 4 points on graphing paper. Estimated a curvilinear line through all 4 points since it is well known that this relationship exists between CO emissions and with vehicle speed (mph). An 800 gm/mi. emission factor was approximated and used.

Alternative D: NPS recommended level, about 40% of Baseline:

Vehicle Miles/Hour	Grams/Mile	Grams/Hour
0	NA ^a	158
5	696	NA
15	232	NA
25	139	NA
35	99	NA

^a NA = Not Applicable.

Ref: DEIS, Vol. I, p. 27, 33.

Calculation for 10.0 mph: Graphed the 4 points on graphing paper. Estimated a curvilinear line through all 4 points since it is well known that this relationship exists between CO emissions and with vehicle speed (mph). A 360 gm/mi. emission factor was approximated and used.

Alternative Amended E: Oxygenated Fuel and Low Emission Lube Oil:

Vehicle Miles/Hour	Grams/Mile	Grams/Hour
0	NA ^a	277
5	1,388	NA
15	463	NA
25	278	NA
35	198	NA

^a NA = Not Applicable.

Ref: White et al., 1998.

Calculation for 10.0 mph: Graphed the 4 points on graphing paper. Estimated a curvilinear line through all 4 points since it is well known that this relationship exists between CO emissions and with vehicle speed (mph). A 680 gm/mi. was approximated and used.

Snowmobiles: Needed 10 mph, given 5 and 15 mph, calculated average = 1,160.5. CAL3QHC CO emission limit = 1,000.00 therefore used 1,000.00 gm/mi.

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² Bombardier High Altitude Light Duty Gasoline Truck for CO at 5.0 mph = 1,526.06 gm/mi., 25° F, 100% cold starts, calendar year = 1980 since the Bombardier that have no emission controls similar to pre-1970 V-8 and the tables do not precede 1980. Used maximum allowed CAL3QHC CO emission factor = 1,000.0 gm/mi. (Compilation of Air Pollutant Emission Factor – Volume II: Mobile Sources, Table J-27). Idling for CO = 487.0 gm/hr winter conditions: 30° F, 13.0 psi RVP gasoline (Emission Facts: Idling Vehicle Emissions). Appendix J High Altitude not available for 25.0 mph, but have Tables J-29 and J-30 High Altitude for 19.6 and 35.0 mph, respectively. Averaged the data for the two types of Snowcoaches and prorated based on number of each type. 10 Bombardier; High Altitude, Light Duty Gasoline Truck for CO at 25 mph = 293.46 gm/mi. (19.6 mph) + 192.72 gm/mi. (35.0 mph) = 486.18/2 = 243.1 gm/mi., 25° F, 50% cold starts 50% stabilized 50% hot starts, calendar year = 1980. Gasoline Snowcoaches in Lanes 1 and 2 at 10 mph; traveling emission factor = 109.9 gm/mi. (DEIS o. 38). No table available for 15 miles per hour (MPH). Graphed 5.0, 10.0, 19.5 and 35.0 MPH, 25° F, 100% cold starts, calendar year = 1980, and approximated 15 MPH = 630 gm/mi. (Compilation of Air Pollutant Emission Factor – Volume II: Mobile Sources, Tables J-27 - 30).

³ 18-Wheelers Diesel Trucks High Altitude Heavy Duty Diesel Truck for CO at 5.0 mph = 47.51 gm/mi., 0 - 100° F, calendar year = 2000 (Compilation of Air Pollutant Emission Factor – Volume II: Mobile Sources, Table J-27). Idling: for CO = 94.60 gm/hr winter conditions: 30° F, 13.0 psi RVP gasoline, and using the Altitude High Adjustment Factor (3.182) = 301.02 gm/hr (Emission Facts: Idling Vehicle Emissions). High Altitude Heavy Duty Diesel Truck for CO at 10.0 mph = 32.76 gm/mi., calendar year = 2000 (Compilation of Air Pollutant Emission Factor – Volume II: Mobile Sources, Table J-28). No table available for 15 miles per hour (MPH).

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Graphed 5.0, 10.0, 19.5 and 35.0 MPH, 0 - 100° F, calendar year = 2000, and approximated 15 MPH = 24 gm/mi. (Compilation of Air Pollutant Emission Factor – Volume II: Mobile Sources, Tables J-27 - 30).

⁴ Light Duty Gasoline Truck (includes passenger vans) High Altitude for CO at 10.0 mph = 109.93 gm/mi., 25° F, calendar year = 2000, 100% cold starts (Compilation of Air Pollutant Emission Factor – Volume II: Mobile Sources, Table J-28). Idling for CO = 487.00 gm/hr winter conditions: 30° F, 13.0 psi RVP gasoline (Emission Facts: Idling Vehicle Emissions). Light Duty Gasoline Trucks (includes passenger vans) for CO at 10.0 mph = 74.51 gm/mi., 25° F, calendar year = 2000, 50% cold starts 50% stabilized 50% hot starts (Compilation of Air Pollutant Emission Factor – Volume II: Mobile Sources, Table J-28).

⁵ Snowplow, High Altitude Heavy Duty Diesel Truck for CO at 10 mph = 32.76 gm/mi., calendar year = 2000. (Compilation of Air Pollutant Emission Factor – Volume II: Mobile Sources, Table J-28). Idling for CO = 94.6 gm/hr winter conditions: 30° F, 13.0 psi RVP gasoline (Emission Facts: Idling Vehicle Emissions).

⁶ Gasoline Personal Passenger Vehicle, High Altitude, Light Duty Gasoline Vehicle for CO at 10 mph = 92.7 gm/mi., 25° F, 100% cold start, calendar year = 2000, (Compilation of Air Pollutant Emission Factor – Volume II: Mobile Sources, Table J-28). Idling for CO = 371.0 gm/hr winter conditions: 30° F, 13.0 psi RVP gasoline (Emission Facts: Idling Vehicle Emissions). Appendix J High Altitude not available for 25.0 mph, but have Tables J-29 and J-30 High Altitude for 19.5 and 35.0 mph, respectively. Averaged the data: 41.61 gm/mi. + 27.83 gm/mi. = 69.44/2 = 34.72 gm/mi.,

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25° F, calendar year = 2000, 50% cold starts 50% stabilized 50% hot starts.

⁷ Diesel Buses, High Altitude Heavy Duty Diesel Vehicles for CO at 10 mph = 32.8 gm/mi., 25° F, calendar year = 2000 (Compilation of Air Pollutant Emission Factors – Volume II: Mobile Sources, Table J-28). Idling for CO = 94.6 gm/hr winter conditions: 30° F, 13.0 psi RVP gasoline (Emission Facts: Idling Vehicle Emissions).

⁸ Gasoline (15 passenger) Vans that are 2 – 3 years old, High Altitude Light Duty Gasoline Truck for CO at 10 mph = 109.9 gm/mi., 25° F, 100% cold starts, calendar year = 2000 (Compilation of Air Pollutant Emission Factors – Volume II: Mobile Sources, Table J-28). Idling for CO = 487.0 gm/hr winter conditions: 30° F, 13.0 psi RVP gasoline (Emission Facts: Idling Vehicle Emissions). Appendix J High Altitude not available for 25.0 mph, but have Tables J-29 and J-30 High Altitude for 19.5 and 35.0 mph, respectively. Averaged the data: 53.38 gm/mi. + 35.63 gm/mi. = 89.01/2 = 44.51 gm/mi., 25° F, calendar year = 2000, 50% cold starts 50% stabilized 50% hot starts.

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<p>Page 1. Re: Introduction and background. The NPS disagrees that there is a “lack of a clear management relationship between the GYA and the parks in the DEIS. The desired conditions for winter use described in the DEIS, for the three national park units closely follow the winter use goals as outlined in the <i>Winter Visitor Use Management: A Multi Agency Assessment (GYCC 1999 p.2)</i>. Because the scope of the DEIS is park specific and does not include the entire Greater Yellowstone Area (GYA), the desired conditions identified in that document should reflect that change in scope. In addition, the DEIS (as required by NEPA) underwent a separate specific scoping effort which identified issues and concerns specific to the 3 park units. It should also be noted that while the <i>Winter Visitor Use Management: A Multi Agency Assessment (GYCC 1999)</i> provides useful information and direction on winter use in the GYA, it is not a decision document and no NEPA analysis was performed. Despite the differences inherent in the two processes the DEIS presents a very clear relationship between parks and surrounding lands. The national forests of the Greater Yellowstone Area; the states of Montana, Idaho and Wyoming; and the five counties surrounding the 3 parks have been granted cooperating agency status. The cooperating agencies have participated in formulating the alternatives (see Appendix A, Volume II of the DEIS) and have provided an analysis of the effects of those alternatives on lands within their jurisdiction. That analysis can be found in the <i>Effects on Adjacent Lands</i> section of the DEIS on pages 298-309. The comments were also printed in their entirety in Appendix I, Volume II of the DEIS. These sections of the document will be updated as the national forests and other cooperating agencies further refine their analysis.</p>
<p>Page 1. Re: Analysis of off-road vehicles. Executive Order 11646 (as amended by EO 11989) defines off-road vehicles as “<i>any motorized vehicle designed for or capable of cross-country travel on or immediately over land, water, sand, snow, marsh, swampland or other natural terrain</i>” (see DEIS, Appendix C). The effects of snowmobile and snowcoach use on the travel corridors of the parks are disclosed for all alternatives including the no action alternative in Chapter 4 Environmental Consequences of the DEIS. The effects of other off-road wheeled vehicles, (as defined by EO 11646), were not analyzed in the DEIS because regulations require that in national parks off-road vehicles must operate only on routes specifically designated for their use. Except for snowmobiles, no such designations exist in the 3 park units (36 CFR 4.10).</p>
<p>Page 2. Re: Preferred alternative. An EIS is not, per se, a scientific analysis. It is intended to disclose environmental effects over a range of alternatives, in which the analyses must demonstrate scientific integrity by disclosing methods and making explicit references to sources used (40 CFR 1502.24). The DEIS does this. CEQ regulations also allow for incomplete or unavailable information, by describing procedures that are to be followed in these instances (§1502.22). Any identified gaps in the FEIS will follow the requisite procedures. Also, there is no requirement in CEQ regulations (§1502.14) to justify a preferred alternative, just to name one or more alternatives as preferred in the DEIS if there is a preference. The agency must express a preferred alternative in a Final EIS. The effects of the alternatives on park values such as air quality, natural soundscapes, and visitor experience have been analyzed in the DEIS on pages 157–327.</p>
<p>Page 2 Re: Page 7, Facility Issues. The scope of the Winter Use Plan DEIS for Yellowstone and Grand Teton National Parks and the John D. Rockefeller, Jr., Memorial Parkway is limited to an examination of a range of alternatives and the associated impacts of winter visitor use (see §1500.4). Activities that occur in the summer, are outside the scope of the DEIS except where their impacts are additive to those occurring in the winter. The effects of those types of actions are considered cumulative (§1508.25(c)) and are disclosed in the DEIS on pages 319-327.</p>
<p>Page 2 Re: Desired conditions. The reference to snowmobile sound and emission levels on page 4 is a typographical error. The bullet should read “Oversnow vehicle sound and emission levels are reduced to protect public and employee health and safety, enhance visitor experience and protect natural resources.”</p>
<p>Page 2 Re: Page 4, Existing conditions. Visitors to the national parks generally come because they are seeking a certain type of experience. Because the basis of any visitor experience is empirical a visitors comment on that experience is often expressed as an opinion.</p>
<p>Page 2. Re: Desired condition. The statements outlined under the <i>Desired Condition</i> heading of the DEIS are described as issues and concerns that are unresolved, that is, there is some contention as to whether the concern is valid or not. Alternatives were formulated in order to provide clear definition of these issues. The effects of these alternatives and the degree to which they achieve the desired condition are assessed in the environmental consequences section of the DEIS. It is appropriate to express these unresolved issues or areas of disagreement, (including professional opinion) as a facet of the existing condition. Indeed, these areas of disagreement are one of the primary indicators that a comparative analysis is required in order to meet the desired condition. This will be clarified in the FEIS.</p>

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<p>Page 2. Re: Concern for groomed road access. As noted in the DEIS several surveys have indicated that existing winter users expressed strong support for maintaining groomed trails in the parks. The State of Montana also notes correctly that users responding to this survey are not the only indicators for meeting the desired condition that should be used. Under the no action alternative approximately 184 miles of road are groomed. Under alternative B (preferred alternative) 154 miles of road would be groomed, a reduction of 15%. The NPS disagrees that the concern for groomed road surfaces is not addressed or is contradictory to the preferred alternative.</p>
<p>Page 2. Re: Sewage treatment capacity. Recently Yellowstone has completed an environmental assessment on a sewage treatment facility at Old Faithful. Because these facility issues are site-specific year round concerns they are typically addressed in separate implementation level environmental assessments (see 1508.18(B)).</p>
<p>Page 3. Re: State of Montana's special expertise. The text describing the special expertise of the State of Montana will be edited to include air and water quality.</p>
<p>Page 3. Alternative B would provide for visitor access from West Entrance to Old Faithful via mass transit shuttle busses, which would reduce the number of vehicle miles traveled from West Yellowstone by nearly 80 % (see DEIS page 202). Because the transit system would be operating under permit from the NPS these busses can be required to fuel their vehicles outside the park if a fuel shortage should arise in the park. The same is true for alternative G. Efforts were made in each alternative to rely on surrounding gateway communities for support services.</p>
<p>Page 3. Re: Air quality. This section will be clarified in the FEIS.</p>
<p>Page 3. Re: Air quality. This section will be clarified in the FEIS.</p>
<p>Page 3. Re: Air quality. Additional air quality modeling for CO for all alternatives will be included in the FEIS.</p>
<p>Page 3. A clarification as to the cause of bison removals will be made in the FEIS.</p>
<p>Page 4. Re: Summer/Winter use comparisons. The scope of the Winter Use Plan DEIS for Yellowstone and Grand Teton National Parks and the John D. Rockefeller, Jr., Memorial Parkway is limited to an examination of a range of alternatives and the associated impacts of winter visitor use (see §1500.4). Activities that occur in the summer, are outside the scope of the DEIS except where their impacts are additive to those occurring in the winter. The effects of those types of actions are considered cumulative (§1508.25(c)) and are disclosed in the DEIS on pages 319-327.</p>
<p>A description of winter facilities is provided on page 140-141. CEQ regulations encourage the authors of NEPA documents to reduce excessive paperwork by emphasizing portions of the environmental impact statement that are useful to decision makers and the public and reducing emphasis on background material (See § 1500.4 (f)). It is unclear from the comment how an additional discussion of changes in fees and changes to summer travel corridors (other than that provided in the introduction and affected environment) would further define a winter use issue, help to clarify the analysis or provide useful information to the decision maker.</p>
<p>Page 4 Re: EIS process. Recently Yellowstone has completed an environmental assessment on a sewage treatment facility at Old Faithful. Because these facility issues are site-specific year round concerns they are typically addressed in separate implementation level environmental assessments (see 1508.18(B)).</p>
<p>Page 4. Re: Scope of the plan and EIS. The stated purpose and need for action defines the desired conditions for winter use for the 3 park units. The scope of the winter use planning effort identified in the DEIS was limited for practical reasons to the 3 park units. Since the alternatives are formulated to respond to the purpose and need, they necessarily exclude those lands outside the jurisdiction of the NPS (§1502.14(c)). Although CEQ regulations allow an agency to consider an alternative that includes actions outside its jurisdiction this was considered to be impractical, in this case, for the following reasons. In response to a lawsuit filed by The Fund For Animals and others in 1997 the NPS agreed to prepare a comprehensive EIS, pursuant to NEPA, addressing a full range of alternatives for all types of winter visitor use, including snowmobiling and trail grooming, in the parks and considering the effects of those alternatives on the parks' environments. The agreement also specified a completion date of the FEIS of September 1, 2000. In order to provide meaningful analysis for the public and decision-makers within the agreed upon timeframe it was essential that the scope of the document be limited to the specifications of the settlement agreement.</p>

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<p>Page 4. Re: Management zones. The management prescriptions describe the potential range of desired resource conditions and visitor experiences. These prescriptions are not comparative, that is they are not intended to define the differences between existing and desired conditions. They are intended to describe the desired condition for that zone. Therefore, to describe air quality as good to excellent is appropriate. In response to your comment these terms will be further defined in the FEIS. In addition to the park's responsibilities under the Clean Air Act, clean air is a park value that is highly regarded by park visitors. It would not be appropriate to identify a parameter of "the maximum allowed by law (approaching exceeding NAAQS standards)" as the <i>desired condition</i> for any zone within the parks.</p>
<p>Page 4. Re: Management zones. Please see the previous response. The management zone describes the parameters that will guide the future management for that zone. The purpose of the management zones is to ensure a diversity of appropriate visitor experiences and to help set up carrying capacity decisions. If, as you suggest, park visitors along these roadways are exposed to a high level of bus exhaust, the NPS agrees that the park visitor may not experience a "sense of being in a natural environment". Consequently, park managers might pursue visitor management actions (i.e. park passes, reservations, use limits etc.) to ensure that the identified desired resource conditions for those zones are met. The purpose of the management prescriptions will be further clarified in the FEIS and a description of carrying capacity studies will be incorporated.</p>
<p>Page 5. Re: Scientific studies and monitoring. Published studies and monitoring reports should as a matter of course be available to the public. For obvious reasons, this information should not be subjected to a political process in advance of their publication. There are policies and protocols already in place to ensure appropriate scientific review. If future studies or monitoring indicate the need for management action, NPS will follow the requirements already set in law (such as NEPA), regulation and policy. At that time, the scientific basis for an action can be scrutinized and criticized by any interested parties.</p>
<p>Page 5. The standards for visitor experience and resource condition for each zone described in each alternative are outlined on Table 2 in the DEIS. On page 25 of the DEIS under <i>Actions and Assumptions Common to all Alternatives</i> the text states that further studies will be necessary to set indicators and further define the standards for achieving the desired visitor experience and resource condition and that if necessary the parks will implement techniques such as reservations, permits and differential fees. This process will be further clarified in the FEIS. (The State of Montana has not been sent a protocol for determining indicators and carrying capacities for the 3 parks because it has not yet been developed.)</p>
<p>Page 5. Re: Cooperating agencies and review of modeling and other information. The NPS disagrees that the State of Montana has not received data, and other information relating to the proposed action and its alternatives in the DEIS. The planning record will show that studies that have been prepared by the NPS for the DEIS and that relate to the cooperating agencies areas of expertise were sent to each of the cooperating agencies for their review. In some cases the NPS funded state designated peer reviewers to review the models and surveys utilized in the analysis.</p>
<p>Page 5. Re: EPA emission standards. The suggestion to use EPA standards for vehicles entering the park in alternative G will be incorporated into the alternative. The suggestion to utilize the EPA method of emission testing (mass of pollutant per unit of power) under alternative G has merit. The alternative feature will be edited in the FEIS. Peak day information will be included in the environmental consequences section for alternative G in the FEIS.</p>
<p>Page 5. Re: Numbers of snowcoaches. This clarification will be added to the description of the environmental consequences of this alternative</p>
<p>Page 5-6. Re: Rationale for the preferred alternative. The preferred alternative is not a decision but is the agency's preferred course of action at the time a draft or final EIS is released. The purpose of identifying the preferred alternative is so that agencies and the public can understand the lead agency's orientation (§1502.14(e)).</p>
<p>Page 6. Re: Public access to the parks. The preferred alternative identified in the DEIS does not ignore the "overwhelming public preference on access to the park" and at the time of the writing of the DEIS appeared to be the most responsive to the criteria stated on page 38-39. All roads identified as open to motorized travel under the no-action alternative are open under the preferred alternative. The preferred alternative also adds an additional 6 miles of motorized access and 10 miles of groomed non-motorized access. The preferred alternative identifies 154 miles of groomed snow road, only 30 miles less than the no-action alternative. As identified on page 218 capacity levels at the Old Faithful area would remain the same as in no action. The preferred alternative adds the ability to access Old Faithful via a plowed road, <i>as well as</i> via an oversnow road, thus increasing opportunities for different types of access. Partly in response</p>

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	to the overall non-support of plowing this section of road, the NPS expresses a new preferred alternative in the FEIS which allows for oversnow access throughout the park by snowcoach.
Page 6. Re: Mandated topics. §1502.16(e) requires that an EIS include a discussion of the energy requirements and the conservation potential of various alternatives and mitigation proposals. The NPS is unaware of a mandate that does not allow the decision-maker to select an alternative that uses more energy than the no-action alternative. Alternative B proposes mass transit on the road sections from West Entrance to Old Faithful. These sections currently receive the most use during the winter. Given current use this alternative reduces the number of vehicle miles traveled by a factor of 8, it is unclear how alternative B would increase the amount of energy used over alternative A. The NPS will review the commenters concerns that energy consumption would be substantially greater under one alternative than another and will make appropriate changes to the FEIS.	
Page 6. The dispersal of exotic species is a problem that accrues to year-round use in the national parks. On the whole, the portion of this problem to be attributed to winter use is very small – considering that the major dispersal agent is the use of horses from park trailheads and trailheads on adjacent public lands. The Park Service’s judgment is that this is not a significant issue worthy of study in this EIS.	
Page 7-8. Re: Regional economy. The information provided will be considered in revising the economic assessment.	
Re: Recreation sector and park visitors. The information provided will be considered in revising the economic assessment.	
Re: Nonmarket values. Editorial changes regarding nonmarket values will be made in the FEIS	
Re: Air quality and public health. Editorial changes will be made to clarify the issues of ambient air quality standards and personal exposure levels value in the FEIS	
Page 9 Re: Air quality and public health. Editorial changes will be made that describe snowcoach emissions in the FEIS.	
Page 9 Re: Air quality and public health. Editorial changes will be made that clarify the methods used for measuring ambient air quality standards on Montana.	
Page 9 Re: Air quality and public health. Editorial changes will be made that clarify the methods used for measuring ambient air quality standards on Montana. Clarification will be made in the DEIS	
Page 9 Re: Air quality and public health. Editorial changes will be made that clarify the air quality analysis. Additional work is being accomplished on air quality and public health and appropriate changes will be incorporated into the FEIS.	
Pages 9-11. Re: Air quality and public health. Additional work is being accomplished on air quality and public health and appropriate changes will be incorporated into the FEIS.	
Page 11. Re: Public Safety. NPS acknowledges that snowmobile traffic sharing a road surface with wheeled vehicles is a potentially hazardous situation. Your comment does not indicate how alternative B would cause this problem to increase. The NPS will review and if appropriate disclose this effect in the adjacent lands section of the FEIS.	
Page 11. Re: Air quality and public health. The text of the FEIS will be edited to reflect the additional source of pollutants.	
Page 11-12. Re: Air quality. Additional work is being accomplished on air quality and appropriate changes will be incorporated into the FEIS.	
Page 12 Re: Bison. The FEIS will include additional information on the brucellosis issue. The term “perceived risk” was removed.	
Page 13 Re: Comment noted. A correction will be made in the FEIS.	
Page 13 Re: Bison management actions. Comment will be incorporated in the FEIS.	
Page 13. Re: Untested Meagher theory. The bison analysis will be reviewed and updated as necessary. In an effort to better understand the relationship of bison movements and the use of the winter groomed road system, managers have instituted studies that address this issue. While groomed roads may have contributed to the redistribution of bison within park boundaries (Meagher 1997), it appears that bison tend to use waterways and off-road trails for much of their travel on the west side of the park (Bjornlie and Garrott 1998), and that much of their movement toward park boundaries may occur on such routes. Monitoring of bison movements in the Hayden Valley and Mammoth to Gibbon Falls sections of the park has found that less than 12% of bison movements occurred on the groomed road surface (Kurz et al. 1998, 1999). However, groomed roads may have allowed larger numbers of bison to exist in the park than in the absence of groomed roads, by allowing access to otherwise unavailable foraging areas, and westward redistribution early in the winter may predispose some	

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bison to exit the park (Meagher 1997). Therefore closing of groomed roads could have the effect of reducing population size and shifting distribution back to patterns observed before grooming, thereby possibly reducing the magnitude of bison movements outside park boundaries. Conversely, bison are highly social and appear to retain and pass along knowledge through generations (Meagher 1985), so it is possible that closing groomed roads may not impact bison movements and distribution. Research is currently being conducted to better understand the relationship between road grooming and bison movement and distribution patterns.	
Page 13. Re: NAS Review of Brucellosis. Comment noted. Reference to the NAS report will be made in the FEIS.	
Page 13. Re: Aune 1981. Aune's work is cited in Chapter 4 "Environmental Consequences" Much of his work did demonstrate that recreation impacts wildlife.	
Page 14. Citation from Aune will be incorporated into the FEIS.	
Page 14. A correction will be made in the FEIS regarding lynx distribution.	
Page 14-15. Re: Assumptions and methods. Additional work is being accomplished on air quality and appropriate changes will be incorporated into the FEIS.	
Page 15. Re: West Entrance relocation. This suggestion will be incorporated as a mitigation measure into alternative E.	
Page 16. Re: Public Safety Assumptions and Methodologies. The effect on visitor safety of different types of winter users, primarily skiers and snowmobilers sharing the same road surface was identified during public scoping. The identified concern is a result of the great difference in the rate of speed of these different user groups: one slow and one fast. If you separate two user groups you will eliminate the danger that a collision between them will occur. The assumption stated on page 162 is valid.	
Page 16. Re: Public Safety Assumptions and Methodologies. This assumption has not been utilized to indicate a level of effect in the preferred alternative. The effects of an increase in winter use on lands outside the 3 park units are discussed on pages 298-315. The USFS is revising the analysis of winter visitor displacement and that information will be incorporated into the FEIS.	
Page 16 Re: MTBE. Additional work is being accomplished on water resources and appropriate changes will be incorporated into the FEIS.	
Page 16 Re: Nitrate. Additional work is being accomplished on water resources and appropriate changes will be incorporated into the FEIS.	
Page 16 Re: EPA regulations. Additional work is being accomplished on air quality and appropriate changes will be incorporated into the FEIS.	
Page 17 Re: Ethanol fuels. This feature is in the range of alternative features analyzed, and will continue to be an option for management.	
Page 17 Re: Pre-paid passes. Pre-paid passes are available in West Yellowstone. Should the need arise at other gates for the same reasons, the service could be expanded. The rationale for this measure – mitigating pollution impacts on visitors and employees – has a cost associated with it. Opportunities for necessary NPS-visitor contact at the gate are lost. Suggesting that all visitors forego an important safety element of the park experience, so that their snowmobiles will be less polluting is clearly not in compliance with 36CFR 2.18. The regulation states that snowmobiles are prohibited except where designated and only when their use is consistent with the park's natural, cultural, scenic and aesthetic values, safety considerations and will not disturb wildlife or damage park resources. In this case, mitigating an effect on park values and resources by completely <i>eliminating</i> an important information and safety resource for park visitors is illogical. Voluntary compliance with this management option is reasonable, but only for those visitors who wish to utilize it.	
Page 17 Re: NAAQS violations. Additional work is being accomplished on air quality and appropriate changes will be incorporated into the FEIS.	
Page 17 Re: Public Health. This information will be included in the FEIS.	
Page 17 Re: Public Health. This information will be included in the FEIS	
Page 17-18. Re: Water Resources. Additional work is being accomplished on water resources and appropriate changes will be incorporated into the FEIS.	
Page 18 Re: Biodegradable lubricants. This feature is in the range of alternative features analyzed, and will continue to be an option for management.	
Page 18-19. Re: Air Quality. Additional work is being accomplished on air quality and appropriate changes will be incorporated into the FEIS	
Page 19. Re: Lynx abundance. The statement regarding lynx abundance will be revised in the FEIS.	
Page 19. GYA regional economy. NPS has set the context for the decision to be made at the level of the GYA region. This is entirely appropriate – witness the comments of all cooperating agencies that this is a regional concern, not just a community concern. Comments about the rationale for the preferred alternative	

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<p>are taken out of context, and are given too much weight; the rationale for the preferred alternative does not set the scope of analysis. NEPA (CEQ Regulations) does not make stipulations about the rationale for selecting a preferred alternative in an EIS; in fact there is no requirement for stating the rationale in an EIS. It stipulates that in a final EIS, a preferred alternative must be identified. The statement of preference for one or more alternatives in a draft EIS is discretionary, depending upon whether the agency has a preference at that point (§1502.14(e)). The identification of a preferred alternative in a DEIS should be regarded by the public as extremely tenuous. This is because an EIS is to serve as a means of assessing impacts of proposed agency actions “rather than justifying decisions already made” (§1502.2(g)). The FEIS preferred alternative may be viewed more as a “precursor” decision, which will only become final in a Record of Decision that expresses the rationale for the choice. In any case, it is clear that merely the expression of a preferred alternative, by itself, can in no way invalidate the entire EIS analysis. The decision-maker can select any of the offered alternatives in a Final EIS through consideration of a variety of factors, including but not limited to environmental impacts. The selected alternative does not have to be the most environmentally preferable alternative, which must also be revealed in the decision document.</p>
<p>Page 20. Re: Alternative B’s major impact. It appears too much emphasis is placed on support or justification for a course of action or decision. See discussion on disclosure of a preferred alternative, above. Under the CEQ regulations, the requirement in an EIS is to provide a range of reasonable alternatives that clearly define the issues, and to fully evaluate and disclose the possible effects of those alternatives. The DEIS meets this requirement, while acknowledging that the commenter disagrees about many of the impacts disclosed. In general, the expressions of opposition relate to the decision that the commenter would like to see NPS make, based on myriad disagreements about the effects disclosed in the DEIS. The general response to such comments is that the commenter’s opinions will be considered in making the final decision, but that there is nothing in those opinions that substantively would alter the range of alternative features to be evaluated in the Final EIS. For example, if the features that are not supported were to be deleted from the range of alternatives then the analysis would be left only with features that the commenter likes or agrees with. If only the actions that are liked by the commenter remain, then there is effectively only one alternative. Therefore, expressions of support or objection will not be responded to, in general, by changes in alternative features – they will be responded to when the decision criteria are developed, and accordingly, when the rationale for the decision is presented in the Record of Decision. People who commented in this fashion are asked to consider that there is a very clear separation between alternatives legitimately considered in an analysis and the expression of a preferred alternative or the decision to be made.</p>
<p>Page 20. In part due to the low public support for one feature of alternative B, plowing the road from West Yellowstone to Old Faithful, NPS will change its FEIS preference to alternative G.</p>
<p>Pages 20-21. Re: Plowed road proposal. The commenter perceives the rationale incorrectly. The stated purpose of plowing the road (DEIS, page 28) is to “improve affordable access” – <u>not</u>, as this and other commenters state, to “provide affordable access for minority and low-income people.” A thorough reading of the EIS would reveal that a required impact topic in an EIS is to evaluate the effects of a proposed action on socially or economically disadvantaged populations (DEIS, page 80). These populations are characterized on page 90 in the DEIS, and the effects on those populations are disclosed in the socioeconomic section for each alternative (DEIS, pp 176, 199, 224, 245, 260, 274, 288). We disagree that this analysis is “extremely flawed”; the stated impacts on socially or economically disadvantaged populations are not used as “justification” for plowing in alternative B. The rationale for preferring alternative B may be found on page 39.</p>
<p>Page 22. Re: Public safety outside the parks. NPS is concerned about public safety outside the parks. As an example, Grand Teton National Park personnel respond to winter accidents involving snowmobiles, et al, on Togwotee Pass. NPS asked all cooperating agencies to provide assessments of impacts on adjacent lands and jurisdictions. These assessments are disclosed in the DEIS on pages 298-315. In particular, for Montana, this point is made on page 311. It appears that the situation involving travel from West Yellowstone to Big Sky and Taylor Fork, and return, is hazardous regardless of any management decision by NPS.</p>
<p>Page 23. Re: Tunnel effect of plowed roads on bison. Pages 182 and 208-09 in the DEIS discuss the impact of snow berms on ungulates. Although the DEIS does not use the term “tunnel effect” it does discuss the negative impact associated with snow berms along the plowed road corridor, and suggests mitigation (p. 209). NPS and the commenter disagree on whether or not a tunnel effect would result from plowing. In many other areas within and near the three park units, roads are plowed and no tunnel effect exists.</p>

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P. 23. Re: Mitigation measures for snow berms. Page 209 in the DEIS discusses creating turnouts in the snow berms for wildlife to exit the road corridor.	
P. 23. Re: NAS report. The FEIS will incorporate the findings of the NAS report.	
P. 23. Re: Effects of groomed trails on bison energetics. The bison analysis will be reviewed and updated as necessary. In an effort to better understand the relationship of bison movements and the use of the winter groomed road system, managers have instituted studies that address this issue. While groomed roads may have contributed to the redistribution of bison within park boundaries (Meagher 1997), it appears that bison tend to use waterways and off-road trails for much of their travel on the west side of the park (Bjornlie and Garrott 1998), and that much of their movement toward park boundaries may occur on such routes. Monitoring of bison movements in the Hayden Valley and Mammoth to Gibbon Falls sections of the park has found that less than 12% of bison movements occurred on the groomed road surface (Kurz et al. 1998, 1999). However, groomed roads may have allowed larger numbers of bison to exist in the park than in the absence of groomed roads, by allowing access to otherwise unavailable foraging areas, and westward redistribution early in the winter may predispose some bison to exit the park (Meagher 1997). Therefore closing of groomed roads could have the effect of reducing population size and shifting distribution back to patterns observed before grooming, thereby possibly reducing the magnitude of bison movements outside park boundaries. Conversely, bison are highly social and appear to retain and pass along knowledge through generations (Meagher 1985), so it is possible that closing groomed roads may not impact bison movements and distribution. Research is currently being conducted to better understand the relationship between road grooming and bison movement and distribution patterns.	
P. 23. Re: Energetic value of walking on groomed roads. If the issue is the effect of groomed surfaces on the energy balance of individual animals, as is the intent of the DEIS discussion, then groomed surfaces by themselves allow animals to save energy. This is why they use the surfaces, and it is apparently to their benefit. The DEIS also makes the point that recreation use of groomed surfaces contributes to stress and energy expenditures by animals. The larger issue – given the balance of energy savings vs. energy loss – is if and to what extent these circumstances constitute an impairment of park values. The total picture – groomed routes, type and amount of use, stressful periods for wildlife, availability of forage – needs to be considered in the final decision. The goal of natural regulation applies to whole populations, not individuals, and must factor in the presence of people.	
P. 24. Re: Bison movement from Tower to Mammoth and from 7-mile Bridge to West. The FEIS will include some of the information cited in Aune et al 1997.	
P. 24. Re: Effects of nonmotorized use on ungulates. The statement regarding the effects of nonmotorized use on ungulates will be revised in the FEIS.	
Page 25. Re: Effects on public health. Modeling of air quality impacts, including consideration of Montana's estimates, will be incorporated into the FEIS. Additional air dispersion modeling for CO for all alternatives will be included in the FEIS.	
Page 25. Re: Water Resources. Additional work is being accomplished on water resources and appropriate changes will be incorporated into the FEIS.	
Page 25-26. Re: Air quality. Modeling of air quality impacts, including consideration of Montana's estimates, will be incorporated into the FEIS. Although alternative C (as well as alternative D) proposes selling 10 percent ethanol fuel and synthetic low emissions lubricants in the park, this does not ensure that all snowmobiles would operate on these products.	
Pages 27-28. Effects on national forests were provided by USFS personnel. This section will be adjusted in accordance with USFS comments on the DEIS.	
Page 29. Re: Effects on states. NPS will incorporate the suggested information into the FEIS.	
Page 29. Re: Relationship between local short-term uses and long-term productivity. In order for the suggested impacts on lands far beyond park boundaries to be assessed, it would first be necessary for the states to provide an assessment of the current impacts of snowmobiling, or other winter uses, on those lands. NPS cannot be expected to perform this analysis without some assistance from Montana. The NPS is not aware whether such needed assessment information is available from the state of Montana.	
Page 29. In order for the suggested impacts on lands far beyond park boundaries to be disclosed, it would first be necessary for the states to provide an assessment of the current impacts of snowmobiling, or other winter uses, on those lands. NPS cannot perform this analysis without assistance or information from Montana. The NPS is not aware whether such needed assessment information is available from the state of Montana. NPS has the impression from this	

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series of comments (i.e., short-term vs long-term, cumulative effects) that Montana, as well as lands in other states, is at or approaching a threshold of snowmobile use. This conclusion is drawn from the implication that any changes in snowmobile use in the parks could distribute unwanted additional use to adjacent lands and have important negative effects. It is also at odds with the suggestion that closing portions of the parks to snowmobiling would have the negative effects on local communities – if people will still come to those communities to snowmobile and place local resources at risk. Such inconsistencies and the unavailability of data, make it difficult to respond effectively to the comment.
Pages 30-31. Potential cumulative impacts on national forest lands are discussed on pages 326-327 of the DEIS. NPS believes the cumulative effects analysis is sufficient to provide information for the decision to be made. Any additional input received from cooperating agencies, in accordance with their special expertise, before the preparation of the FEIS will be incorporated into it.
P. 31. Re: Threatened and Endangered Species. Potential cumulative impacts to T&E species associated with winter recreation will be more fully discussed in the FEIS. Again, input from cooperators is necessary for the NPS to formulate a comprehensive analysis on areas of concern outside the parks.
P. 32. Re: Species of Special Concern. Potential cumulative impacts to species of concern associated with winter recreation will be more fully discussed in the FEIS. Again, input from cooperators is necessary for the NPS to formulate a comprehensive analysis on areas of concern outside the parks.
Page 32. Appendices. Clarifications on indicated pages will be made in the FEIS.
Attachment to letter: Montana's Proposed Preferred Alternative. Montana's proposal is not significantly different from alternative E as presented in the DEIS, especially considering the programmatic nature of the proposed action. Features proposed by Montana are for the most part considered within the range of DEIS alternatives, and will continue to be available for selection by the decision maker following publication of the FEIS. Other recommended features are more site-specific than programmatic, or have been dismissed with rationale. See the matrix comparison of Revised Alternative E, which resembles Montana's alternative, versus the features analyzed in the DEIS. All alternatives in the DEIS meet the purpose and need for action to a greater or lesser degree. For any alternative that incorporates an adaptive management process as its chief feature, the Final EIS will be modified to include more explanation of that process and its resource focus.